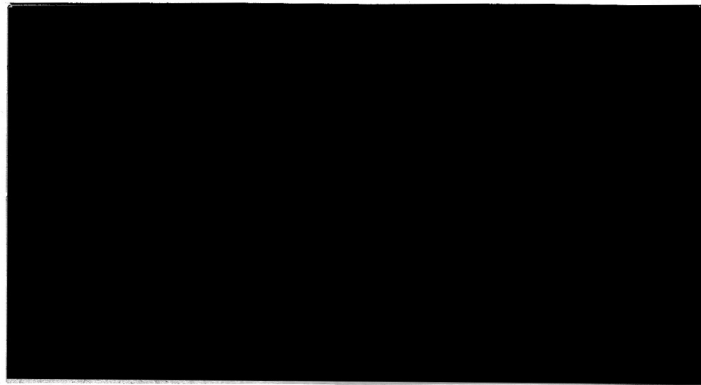


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- | | |
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A Datapro Feature Report

**All About
Teleprinter Terminals**

This report is one of several hundred such reports on data processing and office system hardware, software, services and companies that make up the authoritative Datapro volumes. These volumes are an integral part of each of Datapro's four-part information services for EDP and office professionals. The other service components, subscribed to on an annual basis, include monthly supplements to the volumes, monthly interpretive newsletters, and Custom Consulting with our analysts. Completely independent in its research and evaluations, Datapro publishes the most widely used EDP reference and information services.

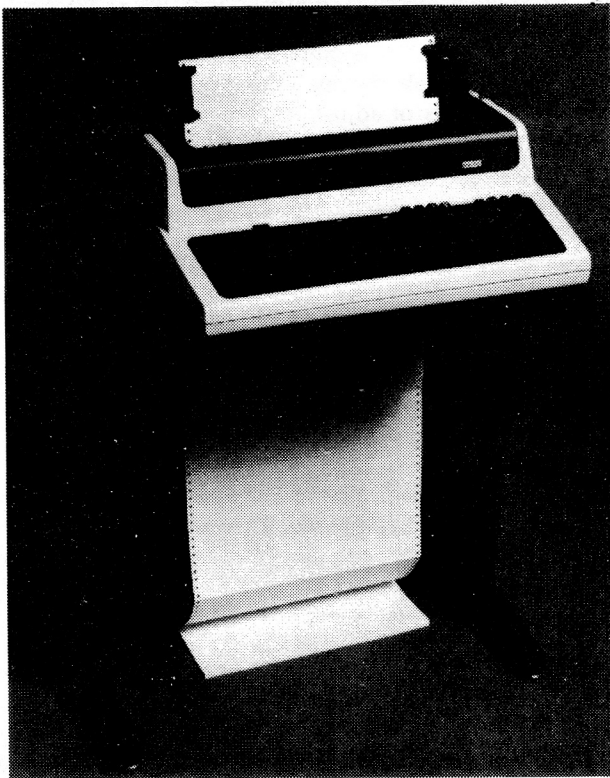
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Teleprinter Terminals—Management Perspective and Equipment Specifications

This report on the teleprinter market, covering products offered by 55 vendors, provides a comprehensive look at the teleprinter industry today. The report addresses technological trends, the pros and cons of teleprinters versus alphanumeric display terminals, the make-up and growth of the teleprinter industry, and the trade-offs between impact and non-impact teleprinters. User experience, a vital aid to intelligent decision-making, is also an integral part of this report; the experience of our subscribers with more than 1,400 terminals is summarized. The accompanying comparison charts present prospective buyers with the detailed characteristics of 142 current terminal models and their prices.

What may seem like a relatively stable market when compared to other areas of data processing is actually quite dynamic. Concentration on the old stand-bys is giving way to a new generation of highly sophisticated data communications devices. The teleprinter marketplace has adjusted from the impact of display terminals, and is slowly but with deliberation carving out a new, more specialized niche.



Digital Equipment Corporation's LA38 is a member of the company's DECwriter IV line of printer terminals. The microprocessor-based, desk-top unit features 30 cps print speed, transmission rates up to 300 bps, and a 128-character buffer. Paper is advanced via a tractor feed mechanism, and printing is accomplished utilizing a 9-by-7 dot matrix impact printhead. The pedestal is optional.

This report presents a comprehensive overview of the current teleprinter scene, including a summary of user experience and comparison charts presenting the specifications of 142 terminal models currently offered by 55 vendors.

Today's Teleprinters

Datapro defines a teleprinter terminal as *any device that combines a low-speed printer with a communications interface*. Although a keyboard is an important component of most teleprinters, its presence is not required for inclusion of a product in this report. And while the majority of terminals included in this definition are serial printers, which print one character at a time, we have not excluded those low-speed (i.e., up to 300 lpm) remote line or page printers which should be considered for receive-only applications. It's worth noting here that while a large number of printing terminals are utilized exclusively or primarily for message-sending applications, this report specifically concentrates on the usage of teleprinters as *data* communications devices. This report excludes fully user-programmable teleprinter terminals, which can be found in the report entitled "User-Programmable Terminals—Basic Characteristics" (C21-010-101).

Today's teleprinters feature a host of significant advances over their early predecessors. Modern teleprinters are available with a variety of printing techniques and a wide range of print speeds. What's more, they offer a variety of useful features such as programmable format control, adjustable forms control, upper and lower case printing, interchangeable character styles (fonts), bidirectional printing and paper feeding, selectable character and line spacing, additional keys such as a numeric keypad, status indicators, and portability. Of course, not all these features are to be found in any one teleprinter, but some vendors include most of them in their top-of-the-line models.

The microprocessor has found its way into teleprinters just as it has with most other types of terminals. Vendors have found that the revolutionary device has substantially cut design, development, and production costs, and it easily lends itself to a variety of applications that can be implemented by either the vendor or user. What's more, the microprocessor precludes rapid obsolescence, since future applications can be implemented via reprogramming.

From the terminal user's point of view, the advent of microprocessor technology offers one major advantage: price. In the highly competitive terminal marketplace, cost savings resulting from implementation of microprocessor technology are often passed on to the customer.

Microprocessor-based programs (firmware) reside in ROM or PROM memory. ROM-resident programs, ➤

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▷ which are inexpensive when reproduced in large quantities, control those features which are permanent and unchangeable; while PROM-resident programs are typically produced in smaller quantities and implement customized or modifiable features. Either type can be replaced by simply removing the old chip and putting in a new one. This flexibility is highly beneficial to the manufacturer, since older equipment can be updated and non-standard customer specifications fulfilled without costly hardware changes. Theoretically, program interchangeability might also benefit the user, but in practice it is doubtful that the requirements of a particular user will change often enough to make it a great advantage. The fact that PROM replacement generally must be done at the factory or by a field service technician precludes frequent PROM replacement.

In addition to controlling basic terminal functions, the microprocessor firmware can provide protocol emulation, define the character/code sets to be generated by the keyboard, implement special features, set control parameters, etc. Firmware specifications are generally determined at the time of order, and once the firmware is in place, execution is transparent to the user. Some vendors have predetermined programs from which to choose; a few permit the user to submit his own firmware specifications.

Teleprinter or Tube?

Teleprinters have traditionally been used as interactive terminals for two reasons: 1) they were the *only* type available before the CRT era, and 2) their costs (particularly for the Teletype models) were substantially below those of the early display terminals. However, cost is no longer the determining factor for selecting a teleprinter over a display terminal. With the introduction of the microprocessor, CRT terminal costs have plunged, and many of the so-called "dumb" CRT terminals are now available at substantially lower costs than teleprinters. For example, Teletype-compatible display terminals are currently available for as little as \$800 in single quantities and less than \$600 in quantities of 100 or more. Keyboard/prINTER terminals range upward from \$1,200, and are typically priced between \$2,000 and \$4,000. Printer mechanisms are more costly to produce than electronic components, and unless a new technique eliminates the printing and paper-movement mechanisms or new production techniques are implemented, teleprinter costs will typically continue to be substantially higher than those of basic display terminals.

Then why do teleprinters continue to constitute a large and viable segment of the interactive terminal market? Simply because there continues to be a strong demand for printed copy; some applications cannot survive without it. Some typical examples are messages or records that must be retained for reference, reports that must be distributed, program development, and unattended reporting (such as transmission after office hours, when rates are lowest). Use of RO teleprinters in conjunction with CRT terminals is a growing factor. Many applications require printed output,

but the user prefers to key the data or message on a CRT so that corrections and editing can be performed before inbound transmission occurs. The operator also can run an audit copy of the message or data, exactly as it was sent. Although it is possible to attach a peripheral printer to a display terminal, it is generally less expensive to purchase a comparably-featured printer terminal.

Another important factor is portability. This aspect is important to a traveling business-person whose needs are satisfied by a small, light-weight, hand-carried terminal. A fairly wide selection of portable printing terminals in the 13- to 18-pound weight class is currently available from such vendors as Texas Instruments, Computer Devices, and Computer Transceiver Systems. There are few comparable portable display terminals currently on the market.

Users who do not really need hard-copy output or portability should consider the numerous advantages of display terminals; Report C25-010-101 presents a detailed discussion and survey of the current alphanumeric display terminals.

Industry Profile

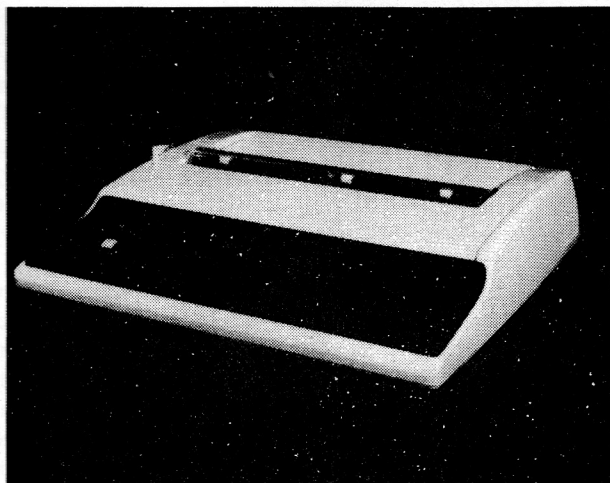
The teleprinter market has been extremely active in realigning its DP role, redefining traditional territories, and developing specialty markets that have not been penetrated by CRT's. The smaller, more specialized teleprinter market that is beginning to emerge is as active, competitive, and fast-moving as that of displays. And, as with most periods of adjustment, the process is causing some upheaval: acquisitions, dropouts, and new entrants are not uncommon among the participants.

Teleprinters will continue to be the major link between remote computing (timesharing) companies and their clients. The user uses the keyboard to access the service, sign on, and perform data entry. When the user is ready to have reports printed, the proper form(s) are inserted in the printer station and the teleprinter prepares the reports. Higher teleprinter speeds can result in less connect time, so that the units literally pay for themselves.

The low cost RO teleprinters are now being sold as output devices for personal computers. Of course, as such, they are not teleprinters because they have no communications interface—they are connected directly to the computer. However, the personal computer market, while not an area addressed by DATAPRO REPORTS ON DATA COMMUNICATIONS, is a market into which the manufacturer of teleprinters is discovering that he can sell.

As you can see, the dynamics of the teleprinter segment are nearly as fluid as those of the display terminal sector of the terminal market. A new generation of teleprinter terminals is slowly but steadily emerging from this upheaval. One really bright spot in this new generation is the portable teleprinter, which is becoming increasingly popular and is less susceptible to replacement by CRT's. Those teleprinter

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Since the introduction of the TerminiNet 300 in 1969, General Electric's TerminiNet family of printer terminals has become one of the largest and most successful lines of printers on the market. The TerminiNet 2030 is one of the newest members of the family, having been unveiled in the latter part of 1980. Offering a print speed of 30 cps, the TerminiNet 2030 features quiet operation due in part to the company's patented blade-matrix printhead.

vendors who continue to compete with the glamour and sheer size of the display terminal market may find that their business is down. Those who cannot adjust to the fact that what was once the exclusive domain of the printing terminals is now dominated by the CRT's will slowly be weeded out. But those who strive for a new niche in the DP picture have a good chance of succeeding.

The Industry Giants

The proven success of four teleprinter manufacturers—in terms of both endurance and volume—deserves special recognition. Teletype Corporation, Digital Equipment Corporation, General Electric Company, and Texas Instruments Inc. are responsible for the delivery of a combined total of more than two million teleprinter terminals.

Teletype Corporation, a subsidiary of AT&T, is the traditional patriarch of the teleprinter terminal industry. Its family of teleprinters has dominated the terminal market for more than a decade and has long represented the primary de facto standard which most other manufacturers emulate.

Teletype holds a unique position in the market that sets it apart from all the other terminal manufacturers. As a subsidiary of AT&T, it enjoys the advantages of a huge built-in market. Teletype equipment produced for AT&T's Bell System is available from Bell only as part of specific communications services. Teletype equipment is also available directly from Teletype Corporation, but on a purchase-only basis.

The other three manufacturers are running neck-in-neck for second place:

Digital Equipment's popular DECwriter line consists of pedestal-mounted and desk-top impact printers. Since the first DECwriter was introduced in 1975, more than a quarter million of these durable teleprinters have been produced.

General Electric's TerminiNet family, with over 250,000 units installed, has grown steadily since 1969 when the TerminiNet 300 was announced. The family includes a wide variety of printing terminals, including serial matrix and full-character teleprinters and low-to-medium-speed line printers that can be equipped with remote communications interfaces.

In December 1978, Texas Instruments celebrated the production of its 200,000th terminal. Its Silent 700 thermal teleprinters, including a portable unit and two models equipped with bubble memory, and its Omni 800 buffered impact printer terminals typify the "new generation" of teleprinters aimed at a broad range of speciality markets.

Leasing Companies

Teleprinter terminals, particularly those produced by Teletype Corporation, Digital Equipment, General Electric, Texas Instruments, Diablo, and other large manufacturers, are available from sources other than the manufacturers. These additional suppliers are third-party leasing companies or remote computing companies that purchase OEM quantities of the terminals from the manufacturer and lease the terminals to users.

Service and installation are usually provided by the leasing firm. Prime-shift service is generally included in the lease price of the terminals. Additional maintenance coverage may be available at extra cost. Cancellation of the lease is generally permitted on 30 days' notice. Teletype Corporation provides classroom instruction on the servicing of its equipment for the benefit of leasing firms that market its terminals.

In addition, a large number of these distributors also make minor, and in some cases major, equipment modifications or enhancements to provide unique products or configurations not available from the original manufacturer. Those units with major modifications are shown in the accompanying comparison charts under the leasing company's name.

Nationally prominent leasing firms include RCA Service Company, a division of RCA; Western Union Data Services, a division of Western Union; Alanthus; Carterfone; and Data Access. A list of the full names and addresses of these leasing companies is provided for your convenience at the end of the list of vendors which immediately precedes the comparison charts accompanying this report.

Serial Printers

The majority of today's teleprinter terminals employ serial printers, so named because they print one character at a ▷

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Lexicon Corporation's LEX-21 teleprinter terminal measures 8½" x 11" x 2¾", and weighs only 5 pounds. The LEX-21 features a full function keyboard, a thermal printer, upper and lower case characters, a 2K memory for text composition and editing, and a 1K line buffer. A numeric keypad is optional. Shipments of the LEX-21 are scheduled to begin in July 1981.

▷ time. Serial printers are grouped into two broad categories: those that mechanically strike or "impact" the paper through a ribbon to produce a printed image, and those that produce a printed image by some other means. Based on this key distinction, printers are generally classed as either *impact* or *non-impact* printers. Teleprinters using an impact printing technique can be further divided into two subcategories: those that produce a "full-character" (typewriter-like) image, and those that produce a character image formed by a matrix of dots. Non-impact teleprinters currently form characters by the dot matrix configuration only, using either an electrothermal or ink-jet printing method. The salient characteristics of these printing techniques are compared in the accompanying table of general characteristics.

Impact Printing

Numerous teleprinter terminals are currently available that feature full-character impact printing. These terminals generally operate in the range of up to 55 characters per second, with the exception of the GE TermiNet 1200 and 1232, which can reach a speed of 120 characters per second. Among the more popular terminals in this class are the IBM 2740 and 2741, which contain a version of the ubiquitous IBM Selectric typewriter, the GE TermiNet 1200, the Teletype family of teletypewriters, and the Sperry Univac DCT 500, to name a few. Each of these terminals employs a different printing technique. IBM uses a replaceable "golf ball" print element that permits the operator to change type styles rapidly by snapping out the existing element and snapping a new one into its place.

General Electric employs a moving type belt and a row of actuators, one per print position. Teletype, in its Models 33 and 38, uses a rotating cylinder that contains the type face and, in principle, operates much the same as the IBM Selectric typewriter. In its Models 35 and 37, Teletype uses a type block with type pallets embedded in the block; a single actuator is used. Univac uses a helical print wheel and throw-away cartridge ink roller.

The Diablo HyType, Qume Sprint, and Perkin-Elmer Carousel impact printers, because of their novel approach, represent a significant contribution to the serial printer industry and a challenge to the IBM Selectric printer. With fewer than 12 moving parts, these printers (equipped with stepping motors) are rated at 2 to 3½ times the print speed of an IBM Selectric. Printing can be performed in either direction and paper fed either up or down. Character and line spacings are variable, with up to 120 increments per inch horizontally and up to 48 vertically to permit proportional letter spacing or incremental plotting. The print element used by the Diablo and Qume printers is a flat disk with petal-like projections called a "daisy," while that of the Perkin-Elmer printer is shaped like a cup with finger-like projections. At the end of each projection is an embossed character.

The Diablo, Qume, and Perkin-Elmer printers offer good-quality printing at a low noise level, easily changeable type fonts, and higher speeds than most other full-character printers. Many terminal vendors have included these printer mechanisms in their products, as noted in the accompanying comparison charts.

General Electric is another company that has developed a high-speed, full-character impact printer for use in typewriter-style terminals. GE's TermiNet 1200, a high-speed version of the successful TermiNet 300 terminal, employs a line printing approach to produce printed copy at speeds up to 120 characters per second. The TermiNet's printing arrangement consists of a type belt containing two symbol sets that moves horizontally in front of a row of print actuators.

The speed limitation on full-character impact printers served as the impetus for printer manufacturers to seek a different approach that would extend the upper limit of printing speed for serial impact printers. Their effort led to the development of the matrix printer, a compromise (though it has been a successful one) between decreased character quality and substantially higher print speeds that permits serial print rates up to 180 characters per second on a number of teleprinter models (a few are even faster).

The matrix type of impact printer produces a printed image formed by a rectangular matrix of dots, typically 7 dots high by 7 dots wide. Printing is performed by moving a print head containing a column of 7 pins across the paper and selectively actuating the pins at 7 successive intervals to form each character. Control Data has attained a speed of 360 characters per second with its Model

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GENERAL CHARACTERISTICS OF SERIAL TELEPRINTERS


Printer Characteristic	IMPACT		NON-IMPACT	
	Full Character	Dot Matrix	Electrothermal	Ink-Jet
Noise Level	Generally noisy except for daisy wheel machines, although some models can be equipped with noise-reducing cabinets or hoods		Quiet operation	
Maximum Print Speed	Ranges from 10 cps (Teletype Models 33 & 35) to 120 cps (Ge TerminiNet 1200/1232)	Ranges from 30 cps (several models) to 360 cps (Control Data 9318)	Ranges from 24 cps (Telpar Model PS-48C) to 120 cps (Texas Instruments 780 Series)	60 cps (Siemens Model PT80 Ink Jet)
Character Formation	Provides typewriter-like printing preferred for many applications. Mechanical limitations on size of character set; large character sets (i.e. many symbols) cause reduced printing speeds	Dot matrix print quality depends on resolution: the most frequently used configuration is a 7-by-7 dot matrix; several vendors offer higher resolution up to 9-by-7 dots	Dot matrix print quality depends on resolution: the most frequently used configuration is a 5-by-7 dot matrix, a lower resolution than that available on many impact teleprinters	A 12-by-9 dot matrix resolution comes very close to the quality of full-character printing
Legibility	Generally good to excellent, but can vary widely depending on ribbon condition, number of copies, and mechanical adjustment		Low resolution matrix extant in most thermal-image characters generally decreases legibility	Generally good to excellent
Printed Copies	Permits simultaneous printing of multiple copies, generally up to 6-part forms		Prints original document only; multiple copies must be produced sequentially	
Paper Type	Uses ordinary computer paper; forms can be preprinted		Uses specially-treated blank paper, which cannot normally be preprinted	Uses ordinary computer paper
Paper Feed	Available with friction, pin, or adjustable tractor feed, vertical forms control, and other support for forms registration and specialty printing requirements		Generally available only with friction feed	Available with friction or pin feed
Physical Size	Generally medium to large desktop or pedestal-mounted units		Medium to small desktop units and compact portables	Desktop or pedestal-mounted units
Reliability	Varies widely depending on durability of the printhead and number of moving parts		Machine components are subject to lower mechanical forces and therefore less wear-and-tear	
Price Range	Prices generally start at about \$3,000 for a basic KSR unit; fully-featured programmable ASR versions can cost up to \$8,500. Exception: Teletype's Model 33 KSR is priced at just over \$800; the Model 43 KSR, about \$1,200	Prices generally start at about \$1,500 for most basic KSR units; a fully-featured programmable ASR version can range upward to around \$9,000	Prices generally start at \$1,200 for a basic KSR; a fully-featured programmable ASR version can range upward to around \$6,000	\$3,000 to \$4,100, depending on options

9318. The 9318, a receive-only teleprinter, uses two print-heads that move bi-directionally along the same axis and in unison, so that each printhead travels just half of the paper width. The Facit receive-only Model 4540 achieves a rate of 250 characters per second, using a single printhead equipped with electromagnetically-controlled hammers instead of wire pins. Though they contain comparatively few moving parts, matrix printers are subject to an increased amount of wear within the print head as a result of the succession of pin movements required to create each character.

Matrix teleprinters are typically less expensive than similarly-featured full-character teleprinters. Especially considering the improved print quality now available with higher-resolution dot matrix printing, careful thought should be given to whether full-character printing is worth the trade-offs in price and speed.

One development that has tended to improve throughput in newer teleprinters is the "logic-seeking" (also called "smart" or "optimized") technique for printing received data. This technique utilizes a print buffer plus a bi-directional printhead. The "logic-seeking" feature seeks out the shortest distance (left or right) from one line to the next and eliminates the time that might be taken for a full carriage return. By utilizing this technique, the Centronics Model 761, for example, can sustain an average data throughput rate of up to 500 bits per second with an actual print rate of 60 cps. Although this technique is currently used primarily on impact teleprinters, it is likely that non-impact teleprinters will also feature it soon.

Non-Impact Printing

Members of the other basic class of teleprinters—the non-impact units—employ various electronic and chemical 

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▷ techniques to produce printed images. All the non-impact teleprinters currently on the market utilize dot matrix character formation. Some of the non-impact printing techniques have evolved from the development of facsimile communications; others were specifically developed for use in high-speed printing applications, where print speeds of better than 20,000 lines per minute are not uncommon, or as low-cost alternatives to impact printing.

The electrothermal (or thermal) printing technique is the most commonly used of the non-impact techniques and is employed in terminals produced by Anderson Jacobson, Computer Devices, Computer Transceiver Systems, NCR, Texas Instruments, and Telpar.

The ink-jet technique, used in the Siemens PT80 Ink Jet teleprinter, was simultaneously and independently developed by A.B. Dick and by Teletype Corporation for high-speed printing applications. A stream of electrically charged ink droplets is sprayed onto ordinary paper to produce printed characters. Character formation is performed by electrostatic deflection plates that control the direction of the charged ink droplets, in much the same manner as the electron beam movement is controlled within a cathode ray tube (CRT). The ink-jet technique is relatively expensive and has a limited market potential, as indicated by the smaller number of units delivered. Production of ink-jet printers has been terminated by both A.B. Dick and Teletype, but IBM uses the ink-jet technique to produce high-quality printed output in some of its word processing systems.

Reliability of most non-impact printers is comparatively high because they have few mechanical parts; 3000 hours or better between failures is not uncommon.

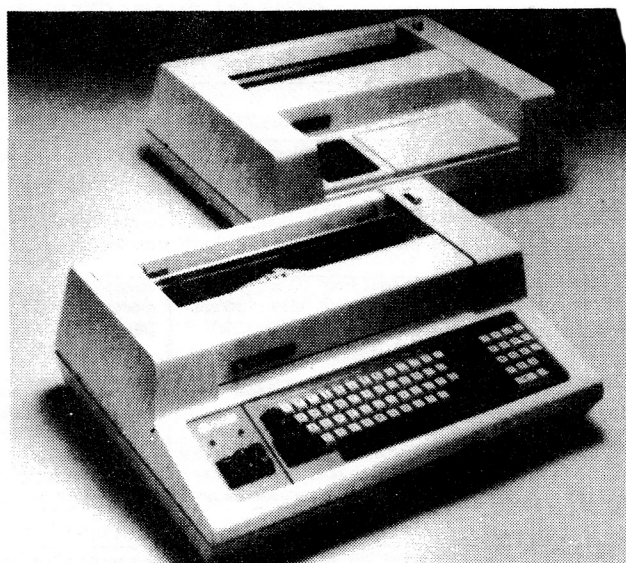
There are some quiet environments where the noise of certain impact printers simply cannot be tolerated. The virtually silent non-impact printers are especially desirable in these locations.

The non-impact printers' ability to produce only one copy at a time might be a crippling disadvantage if you normally require several copies. But if you don't mind the additional time required to run off the needed extra copies on a nearby copying machine, the limitation of one copy may not be detrimental.

User Experience

To assess the current level of user satisfaction with the installed teleprinter terminals and to determine some usage patterns, a Reader Survey Form on Teleprinter Terminals was included in the March 1980 supplement to *DATA-PRO REPORTS ON DATA COMMUNICATIONS*.

By the editorial cut-off date of April 13, 1981, 95 usable responses had been received from 43 users, representing user experience with a total of 1,414 terminals. (Many users reported on multiple models and/or vendors.)



The models 840 KSR and RO printers are the newest additions to Texas Instruments' OMNI 800 line. The impact printing terminals feature a print speed of 75 cps, and offer plug-compatibility with the company's previously existing OMNI 800 printers, Models 820 and 825.

The ratings which the users assigned to the various models are shown in the accompanying tables. Subtotals by vendor are presented to make group comparisons easier. Weighted averages of the user ratings are also shown to simplify comparisons between models with dissimilar numbers of responses. Some of the models were rated by only a few users, and the results in these cases are presented solely for information purposes; it would be unwise to draw firm conclusions about these models from the small samples represented. For many models, however, the number of responses appears to be large enough to represent a valid crosssection of their users' experience.

Several questions were asked to determine usage patterns. The percentage results reported below are based on the total number of responses (95).

The users were asked to describe the characteristics of their teleprinter terminals. Their responses can be summarized as follows:

	Number of Responses	Percent of Responses
TERMINAL CONFIGURATION		
ASR	27	28
KSR	56	59
RO	12	13
TRANSMISSION MODE		
Half duplex	61	64
Full duplex	39	41
TRANSMISSION FORM		
Character	81	85
Block	14	15
PARITY		
None	51	54
Character	31	32
Block	9	9

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	Number of Responses	Percent of Responses
PRINTING SPEED		
10 char./sec.	9	9
20 char./sec.	1	1
30 char./sec.	50	52
120 char./sec.	21	22
Other speeds	16	17
TRANSMISSION SPEED		
Printing speed	69	73
Higher	22	23
TRANSMISSION FACILITY		
DDD (dial-up)	58	61
Private line	35	37
Locally connected	20	21
Other	8	8
TYPE OF MODEM		
Acoustic	24	25
Integral	27	28
Bell System	24	25
Locally connected	17	18
Other	14	15

Those users who utilize a storage option for their terminals were asked to provide the following information:

	Number of Responses	Percent of Responses
TYPE OF DEVICE		
Punched tape	9	9
Cassette tape	7	7
Diskette	4	4
Other or unspecified	7	7
SOURCE OF DEVICE		
Terminal vendor	24	25
Other vendor	5	5
APPLICATIONS		
Off-line message preparation	16	17
Editing prior to transmission	17	18
Data (file) storage	12	13

We also asked the users whether they planned to replace their existing teleprinter equipment in the near future, with these results:

	Number of Responses	Percent of Responses
Yes, with a CRT display	11	12
Yes, with another teleprinter	6	6
No	57	60

When looking at the usage figures, keep in mind that they are based on the number of responding users, not on the number of terminals. Also, some skew is introduced because not all of the users responded fully. In addition, some users with multiple installations of the same teleprinter model provided multiple answers to some questions.

Teleprinter Terminal Characteristics

The accompanying comparison charts summarize the characteristics of 142 commercially available teleprinter terminals from 55 suppliers. Nearly all of the information was received from the suppliers during the months of

March and April 1981. Their cooperation is acknowledged and greatly appreciated.

Datapro sent repeated requests for information to 60 companies known or believed to be in the teleprinter terminal business. The 55 usable responses summarized in our charts provide a comprehensive picture of the commercial terminals that are currently available in the United States and Canada. *The absence of any specific company from our charts means that the company either failed to respond to our repeated information requests or was unknown to us.*

The comparison chart entries and their significance are explained in the following paragraphs.

Compatibility

Most of the communications terminals currently on the market are designed as direct replacements for other popular terminals. In the teleprinter terminal market, replacement terminals generally fall into four categories: those designed to replace a Teletype Model 33 or 35 teletypewriter, those designed to replace an IBM 2740 Model 1 or Model 2 Communications Terminal, those designed to replace an IBM 2741 Communications Terminal, and those designed to replace an IBM 3767 using SDLC protocol. Datapro included these four entries to define the category of *compatibility*.

Model Configurations

Teleprinter terminals are typically available in any or all of three basic *model configurations*: Receive only (RO), which includes a *printer only*; Keyboard Send Receive (KSR), which includes a *printer and keyboard*, and Automatic Send-Receive (ASR), which includes a *printer, keyboard, and a storage device* such as a punched tape reader and punch, a cassette or cartridge tape drive, a diskette drive, random-access memory (RAM), or the more recently introduced bubble memory. For many years, the conventional teleprinter ASR configuration always included a combined punched tape reader and punch because it was the only available low-priced storage device. But in more recent years, magnetic tape cassette and cartridge recorders have been replacing punched tape equipment on computer terminals as a result of quality components, decreasing prices, ease of use, and operating flexibility. The diskette or "floppy disk" also belongs in this category. RAM memory is becoming increasingly popular with the rising availability of large-capacity RAM modules at diminishing prices. Bubble memory, as introduced by Texas Instruments on its 763 and 765 Electronic Data Terminals, is a promising replacement for other forms of terminal storage in the future.

Some terminals provide an *auxiliary or second serial (RS-232C) interface* for attaching a user-supplied I/O device, such as a cassette or diskette unit.

Terminals that are designed to be hand-carried (usually in a suitcase-like enclosure) are noted in the entry *portable case*.



Teleprinter Terminals—Management Perspective and Equipment Specifications

Terminal Supplier and Model	No. of User Responses	No. of Terminals in Use	Weighted Averages and Response Counts																																		
			Overall Performance					Ease of Operation					Keyboard Feel and Usability					Print Quality					Noise Level					Hardware Reliability					Maintenance Service				
			WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P					
Anderson Jacobson— AJ 832	3	4	3.7	2	1	0	0	3.3	1	2	0	0	3.3	1	2	0	0	3.0	1	1	1	0	2.7	0	2	1	0	3.3	1	2	0	0	2.7	0	2	1	0
Digital Equipment Corporation— LA 35/36 DECwriter II	10	78	3.4	5	4	1	0	3.2	4	4	2	0	3.2	4	4	2	0	2.6	0	6	4	0	2.5	1	3	6	0	3.0	2	6	2	0	3.0	1	6	1	0
LA 120	6	104	3.7	4	2	0	0	3.3	2	4	0	0	3.3	3	2	1	0	3.0	2	3	0	1	2.3	0	2	4	0	3.0	2	3	0	1	3.7	5	2	0	0
Subtotals	16	182	3.5	9	6	1	0	3.3	6	8	2	0	3.3	7	6	3	0	2.8	2	9	4	1	2.4	1	5	10	0	3.0	4	9	2	1	3.3	6	8	1	0
General Electric— Terminet 30	3	3	3.3	1	2	0	0	2.7	0	2	1	0	2.3	1	1	1	0	2.7	0	2	1	0	3.0	1	1	1	0	3.3	1	2	0	0	3.0	0	3	0	0
Other models	6	67	3.3	2	4	0	0	3.2	1	5	0	0	2.8	0	3	1	0	2.5	2	3	1	0	2.8	1	2	2	0	3.0	1	4	1	0	2.7	0	4	2	0
Subtotals	9	70	3.3	3	6	0	0	3.0	1	7	1	0	2.6	1	4	2	0	3.0	2	5	2	0	2.9	2	3	3	0	3.1	2	6	1	0	2.8	0	7	2	0
IBM, all models	6	203	3.3	3	2	1	0	3.3	2	4	0	0	3.0	1	3	1	0	3.3	3	2	1	0	3.0	1	4	1	0	3.5	4	1	1	0	3.0	3	1	1	1
Teletype— Model 33	3	6	3.0	0	3	0	0	3.0	0	3	0	0	2.0	0	1	1	1	2.0	0	0	3	0	1.0	0	0	0	3	2.7	1	1	0	1	2.7	0	2	1	0
Model 43	9	73	3.4	4	5	0	0	3.3	3	6	0	0	3.4	4	5	0	0	3.2	3	5	1	0	2.8	2	3	4	0	3.7	6	3	0	0	3.0	4	3	1	0
Subtotals	12	79	3.3	4	8	0	0	3.3	3	9	0	0	3.1	4	6	1	1	2.9	3	5	4	0	2.3	2	3	4	3	3.4	7	4	0	1	2.9	4	5	2	0
Texas Instruments— Model 743/745	10	217	3.4	4	6	0	0	3.0	4	6	0	0	3.1	2	7	1	0	2.6	0	6	4	0	3.1	4	3	3	0	3.3	4	5	1	0	2.9	3	5	1	0
Model 765	4	5	3.8	3	1	0	0	3.3	1	3	0	0	3.5	2	2	0	0	2.8	0	3	1	0	3.0	1	2	1	0	3.8	3	1	0	0	3.5	2	2	0	0
Other 700 Series	5	195	3.0	1	3	1	0	3.4	2	3	0	0	3.4	2	3	0	0	2.6	1	2	1	1	3.4	2	3	0	0	3.2	2	2	1	0	2.8	1	2	2	0
Model 820	4	13	3.5	2	2	0	0	3.8	3	1	0	0	3.0	0	4	0	0	3.3	1	3	0	0	3.0	1	2	1	0	3.3	1	3	0	0	2.8	1	1	2	0
Subtotals	23	430	3.4	10	12	1	0	3.4	10	13	0	0	3.1	6	16	1	0	2.7	2	14	6	1	3.1	8	10	5	0	3.3	10	11	2	0	2.9	7	10	5	0
All Others	26	446	3.2	7	17	2	0	3.0	4	18	4	0	3.0	3	16	2	0	2.6	2	14	7	2	2.5	3	13	5	5	3.1	7	15	4	0	3.0	7	12	4	2
Grand Totals	95	1414	3.3	38	52	5	0	3.2	27	61	7	0	3.1	23	53	10	1	2.8	15	50	25	4	2.7	17	40	29	8	3.2	35	48	10	2	3.1	27	45	16	3

LEGEND: Weighted Average (WA) is based on assigning weights of 4 to each Excellent (E) response, 3 to each Good (G) response, 2 to each Fair (F) response, and 1 to each Poor (P) response.

➤ Features

Teleprinter terminals are available with a variety of potentially useful features and capabilities. No one terminal has them all, however, and some stripped-down economy models offer very few of them.

The use of a buffer between the terminal and communications facility promotes communications economy through increased transmission speeds and enhances terminal flexibility through additional capabilities such as message editing prior to transmission. Buffering can be performed by input/output media such as punched or magnetic tape, and often is (e.g., in the Teletype ASR terminals). However, some manufacturers provide an internal buffer (usually composed of a semiconductor shift register), which is used to gather keyed or received data prior to transmitting or printing, respectively. The *line buffer capacity* in characters is presented where applicable.

Editing, by line and/or character, featured only on terminals that provide some form of buffering, allows the operator to correct data that has been erroneously keyed prior to transmission. Some terminals, such as those that include a punched tape capability, provide editing by character only. Those that contain an internal buffer, however, usually permit the entire buffer to be erased so that a line containing an error at the beginning can be quickly retyped instead of having to backspace character-by-character to reach the erroneous entry. On some of the more flexible terminals, such as those that contain dual cassette recorders, the editing facilities include the ability

to update an existing tape. Keyed data can be merged with data read from the existing tape to produce a new, updated tape.

Parity checking and/or generation are important terminal features that safeguard the integrity of transmitted data. Some terminals only perform parity checking on received data, while others only generate character parity for each transmitted character. Still others provide both checking and generation. Many terminals allow the operator to select odd or even parity or to inhibit the parity functions.

Terminals that are designed to operate in a multistation environment (i.e., multidropped from a leased line) must include a *polling and addressing capability* so that computer messages can be directed to a specific terminal and terminal messages can be selectively transmitted to the computer; otherwise, the multidropped terminals would be required to contend with one another for the computer by "bidding" for use of the line.

The *automatic answer* feature permits the terminal to respond automatically to a call via the dial network from the remote computer. The terminal responds by readying itself to receive and print the incoming message.

Printer Characteristics

Printer *type* and printing *technique* for serial printers have been discussed in the preceding section titled "Serial Printers." *Type* categorizes the printer as an impact or non-impact printer; *technique* specifies the printed character image as full character or dot matrix and ➤

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describes the printing technique in a concise, simplified manner.

The total number of print positions in which the printer can print on each line is specified by the entry, *character positions per line*.

Print rate specifies the maximum rated printing speed of the printer in characters per second. Some terminals offer more than one rated printing speed to facilitate matching the communications characteristics of the remote device. In most cases, manual selection is provided to switch among the available speeds.

Character set specifies the total number of print symbols provided by the printer. Typically, the character set is composed of upper case alphabets, numerics, and special symbols including punctuation. *Lower case alphabets* are usually available as standard or optional, however they are not required in many cases and tend to reduce printing speed. Where more than one character set is available, the entries distinguish between standard and optional sets.

Horizontal pitch defines the spacing between the centers of successive characters printed in the same line, and is presented in characters per inch. *Vertical spacing* defines the spacing between print lines, and is presented in lines per inch.

Forms feed specifies the type of paper-feed mechanism employed by the printer, usually as friction feed, pin feed, or tractor feed. Some terminals are available with more than one type, but typically offer pin feed or tractor feed as an option. Most non-impact printers feed paper without tractor or pin feed mechanisms.

Horizontal tabulation and *vertical formatting* facilitate control of the format of the printed output. In most cases, this level of sophistication is not required but it can be very helpful for registration of preprinted forms and other specialty printing jobs.

Features other than those listed in the standard comparison chart entries, such as split platen, bidirectional printhead, last character visibility, or low-paper indicator, are presented as *other features*.

Keyboard Characteristics

The style of *keyboard arrangement* defines the key/symbol relationships. There are two basic keyboard arrangements, typewriter and keypunch style. Teletypewriter keyboards, such as those provided with the Teletype terminals, can generally be categorized as typewriter arrangements. The keypunch arrangement is often referred to as a data entry keyboard. Some terminals are available with more than one keyboard style to permit the user to satisfy his particular need.

Character set refers to the total number of character codes and the code set that the keyboard is designed to generate. Each keytop symbol, represented by a corresponding bit

pattern, is independent of its corresponding character code and can be interchanged with other symbols without affecting keyboard operation.

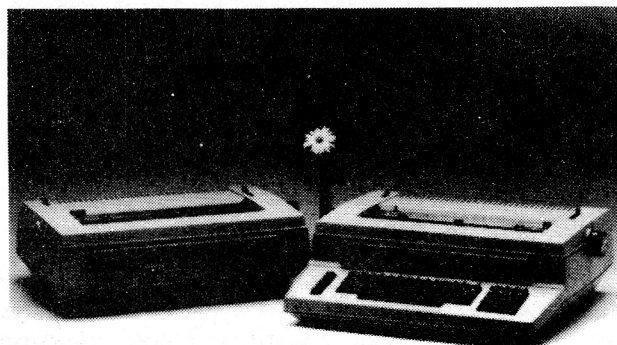
Keyboard *features* include such entries as numeric pad or character repeat. Some terminals offer these features as standard capabilities; others make them available as options only.

Transmission

Each teleprinter terminal contains a communications interface that enables communications between the terminal and the central computer site. *Mode* and *technique* define the operating mode and the method in which data is transmitted. There are three operating modes: simplex (transmission in one direction only), half-duplex (transmission in both directions, but not simultaneously), and full-duplex (simultaneous transmission in both directions).

Data is transmitted synchronously or asynchronously. Asynchronous transmission is characterized by the transmission of data in irregular spurts, where the duration of time can vary between successive transmitted characters; the transmission from an unbuffered teletypewriter is a good example. Synchronous transmission implies the transmission of data in a steady stream. Each transmitted character is clocked, and the time interval between successive characters is always precisely the same. The communications interface either provides clocking or accepts external clocking signals from the data set.

The transmission *speed* of the terminal is specified in bits per second and is usually limited by the speed of the printer or other I/O device unless the terminal contains an internal buffer. Buffered operation permits the printing to be performed at the rated speed of the printer, although the transmission speed may be much greater. Most teleprinter terminals are unbuffered due to cost considerations and therefore operate at low transmission speeds. ➤



The Qume Sprint 5 Printer Terminal is microprocessor-based and features a daisywheel print mechanism. Available in RO and KSR versions, the Sprint 5 prints at 45 or 55 cps, and has operator-selectable transmission rates of 110, 150, 300, 600, and 1200 bps. Qume printers are known for their high print quality.

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▷ The transmission *code* refers to the bit pattern of the transmitted characters. The ASCII code is prominent and has been accepted as an industry and government standard; it is now by far the most commonly used code. Other transmission codes popularly employed by teleprinter terminals include Correspondence (a Selectric terminal code introduced by IBM) and two paper tape transmission codes, PTTC/BCD and PTTC/EBCD. Correspondence, PTTC/BCD, and PTTC/EBCD are all 7-level codes (including character parity); ASCII is an 8-level code, which also includes character parity. A few vendors also offer transmission using EBCDIC or Baudot code patterns.

The *unit code structure* specifies the total number of bits transmitted for each character. Asynchronous operating conventions require a single start bit and one or two stop bits to be combined with the character code for each transmitted character; therefore, an 8-level code such as ASCII is transmitted as a 10- or 11-unit code. Following Teletype's lead, the 11-unit code structure has been generally adopted for transmission at 10 characters per second; 10-unit codes are typically used at higher operating speeds.

Terminals that are capable of operating at more than one transmission speed typically feature *operator selectable speeds* via switch selection.

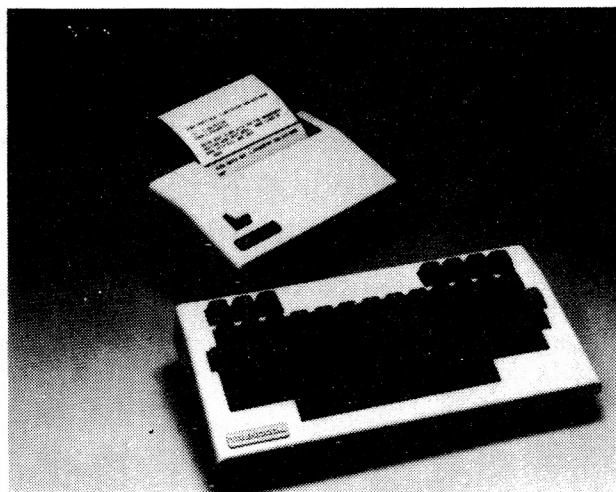
Transmission *block size* refers to the length in characters of a transmitted message. Unbuffered terminals transmit each character as it is keyed; therefore, the entry reads "character-by-character." Buffered terminals transmit data in multi-character blocks whose length is usually limited by the buffer capacity.

The terminal's *communications interface* generally meets the standard EIA RS-232B/C and CCITT specifications and connects to a modem or acoustic telephone coupler. Teletype terminals and their independent replacements are also available with a 20 or 60 milliampere dc current loop interface designed for use on telegraph-grade or private-wire facilities.

Some terminals contain an *integral modem* that can be connected directly to a communications line via a Bell System Data Access Arrangement. In some cases the manufacturer also provides an acoustic and/or inductive *telephone coupler* so that the terminal can be connected to a conventional telephone handset.

Pricing and Availability

The comparison charts show the *one-year lease*, *two-year lease*, and *purchase prices* where applicable. All figures are for end-user single quantities, unless otherwise specified. Single entries generally indicate the price of the basic unit without options; price ranges show the price of the basic unit and the price of an expanded unit with all options, or the price of the low end and high end of a multiple-unit family. In some cases, the terminal supplier



Trendcom's Model 400 teleprinter, pictured here, is a compact thermal printer with a 40-column line format. The company's Model 800 teleprinter features an 80-column line format. Both models can be converted from RO to KSR versions by adding the Model 600 Intelligent Keyboard. The Trendcom units are designed to plug into a standard telephone jack, moving message communications into the manager's office.

offers a lease term other than those shown, such as a 3- or 5-year lease or a 30- or 60-day lease. In such cases, the lease prices and terms appear under the Comments entry at the bottom of the charts.

Many terminal vendors do not lease their equipment, and in these cases you'll find dashes in the lease price entries. Also, a number of terminal makers sell their wares on an OEM basis only, for incorporation into systems supplied by other vendors. Quantity discounts, and discounts for educational and other institutions, are often available.

Monthly prime shift maintenance shows the cost of maintenance during regular working hours (9 to 5), Monday thru Friday.

Date of first production delivery indicates when the first production model of each teleprinter terminal was delivered (or is scheduled to be delivered) to a customer.

Terminals installed to date shows how many teleprinter terminals of each type had been delivered to customers as of April 1980. All figures were supplied by the vendors themselves, and a number of companies chose not to release this information.

Serviced by specifies the party responsible for maintaining the terminal. In some cases the vendor provides total service; in others, a national service organization is responsible. Service is sometimes rendered under the combined efforts of both the vendor and an independent service organization.

Comments at the bottom of the charts describe significant or unusual features, capabilities, or applications which are not reflected in the standard entries.



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Teleprinter Terminal Vendors

Listed below, for your convenience in obtaining additional information, are the full names and addresses of the suppliers. We have broken these suppliers into two categories. "Manufacturers" lists the companies whose unique products are summarized in the comparison charts. "Major Leasing Companies" lists suppliers who distribute other manufacturers' products. Companies offering both unique products and "off-the-shelf" equipment from another manufacturer are listed in both categories.

Manufacturers

Agile Corporation, 1050 Stewart Drive, Sunnyvale, CA 94086. Telephone (408) 735-9904.

Alanthus Data Communications Corporation, 6011 Executive Boulevard, Rockville, MD 20852. Telephone (301) 770-1150.

Anderson Jacobson, Inc., 521 Charcot Avenue, San Jose, CA 95131. Telephone (408) 263-8520.

AT&T, 195 Broadway, New York, NY 10007. Telephone (212) 393-9800.

Bedford Computer Systems, Inc., Three Preston Court, Bedford, MA 01730. Telephone (617) 275-0870.

Burroughs Corporation, Room 4D20, Burroughs Place, Detroit, MI 48232. Telephone (313) 972-8068.

Cal Datacom, Inc., 1844 Carnegie Avenue, Santa Ana, CA 92705. Telephone (714) 540-8553.

Carterfone Communications Corporation, 1111 West Mockingbird Lane, Suite 1400, Dallas, TX 75247. Telephone (214) 630-9700.

Centronics Data Computer Corporation, Hudson, NH 03051. Telephone (603) 883-0111.

Computer Devices, Inc., 25 North Avenue, Burlington, MA 01803. Telephone (617) 273-1550.

Computer Transceiver Systems, Inc., (CTSI), P.O. Box 15, East 66 Midland Avenue, Paramus, NJ 07652. Telephone (201) 261-6800.

Control Data Corporation, 8100 34th Avenue South, Minneapolis, MN 55440. Telephone (612) 853-4656.

Data Access Systems, Inc., 100 Route 46, Mountain Lake, NJ 07046. Telephone (201) 335-3322.

Data General Corporation, Route 9, Westboro, MA 01581. Telephone (617) 366-8911.

Dataroyal, Inc., 235 Main Dunstable Road, Nashua, NH 03060. Telephone (603) 883-4157.

Data Terminals & Communications, 590 Division Street, Campbell, CA 95008. Telephone (408) 379-1112.

Design 100 Corporation, 540 Oppen Street, P.O. Box 578, Escondido, CA 92025. Telephone (714) 743-5587.

Diablo Systems, Inc., (a Xerox Company), 24500 Industrial Boulevard, Hayward, CA 94545. Telephone (415) 786-5000.

Di/An Controls, Inc., 944 Dorchester Avenue, Boston, MA 02125. Telephone (617) 288-7700.

DIGI-DATA Corporation, 8580 Dorsey Run Road, Jessup, MD 20794. Telephone (301) 498-0200.

Digital Equipment Corporation (DEC), 146 Main Street, Maynard, MA 01754. Telephone (617) 897-5111.

DMC, Inc., 2300 Owen Street, Santa Clara, CA 95051. Telephone (408) 727-4444.

Extel Corporation, 3005 MacArthur Boulevard, Northbrook, IL 60062. Telephone (312) 291-2500.

Facit, Inc., Data Products Division, 66 Field Point Road, Greenwich, CT 06830. Telephone (203) 622-9150.

General Electric Company, Data Communications Products Department, Waynesboro, VA 22980. Telephone (703) 949-1000.

Hewlett Packard, Vancouver Division, 2400 N.E. 65th Ave., Vancouver, WA 98661. Telephone (206) 699-4535.

Honeywell Information Systems, Inc., 200 Smith Street, Waltham, MA 02154. Telephone (617) 895-6000.

International Business Machines Corporation (IBM), Data Processing Division, 1133 Westchester Avenue, White Plains, NY 10604. Telephone (914) 696-1900.

Kleinschmidt, Division of SCM Corporation, 450 Lake-Cook Road, Deerfield, IL 60015. Telephone (312) 945-1000.

Lear Siegler, Inc., Data Products Division, 714 North Brookhurst Street, Anaheim, CA 92803. Telephone (714) 774-1010.

Lexicon Corporation, 8355 Executive Center Drive, Miami, FL 33166. Telephone (305) 592-4404.

LogAbax (U.S. Division), 10889 Wilshire Boulevard, Los Angeles, CA 90024. Telephone (213) 477-0494.

Mannesmann Tally, 8301 South 180th Street, Kent, WA 98031. Telephone (206) 251-5500.

Microdata Corporation, 17481 Red Hill Avenue, Irvine, CA 92714. Telephone (714) 540-6730.

NCR Corporation, Small General-Purpose Systems Group, Building 26, Third Floor, Main & K Streets, Dayton, OH 45479. Telephone (513) 449-6623.

NEC Information Systems, Inc., 5 Militia Drive, Lexington, MA 02173. Telephone (617) 862-3120.

Okidata, 111 Gaither Drive, Mt. Laurel, NJ 08054. Telephone (609) 235-2600.

Perkin-Elmer Data Systems, Terminals Division, 360 Route 206 South, Flanders, NJ 07836. Telephone (201) 584-1400.

Printer Terminal Communications Corporation, 124 Tenth Street, Ramona, CA 92065. Telephone (714) 789-5200.

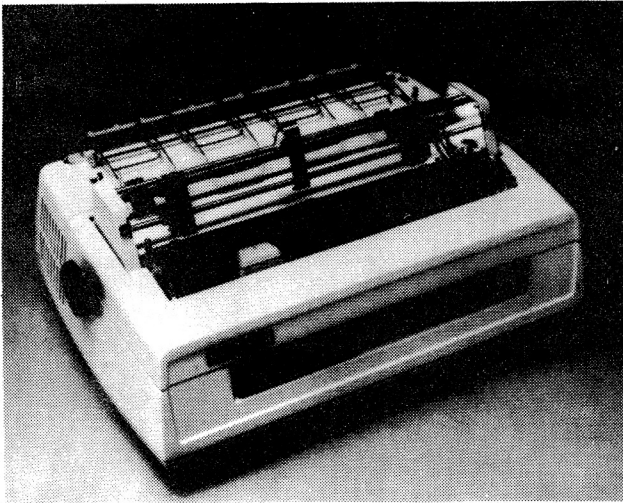
Qume, 2350 Qume Drive, P.O. Box 50039, San Jose, CA 95150. Telephone (408) 942-4000.

Randal Leasing Incorporated, 20710 Manhattan Place, Suite 100, Torrance, CA 90501. Telephone (213) 328-7460.

RCA Service Company, Division of RCA Corporation, Camden, NJ 08101. Telephone (609) 338-4129.

Sanyo Business Systems Corporation, 51 Joseph Street, Moonachie, NJ 07074. Telephone (201) 440-9300.

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NEC Information Systems' Spinwriter 7700 Series printer terminals are available in five models, including both RO and KSR versions. All models feature single board electronics and 55 cps print speeds utilizing the company's full character print thimble element. Paper is advanced via a dual pressure roller assembly and a three roller bail assembly which holds the paper firmly to the platen when the friction feed is engaged.

➤ **Siemens Corporation**, 186 Wood Avenue South, Iselin, NJ 08830. Telephone (201) 494-1000.

Sperry Univac Division, Sperry Rand Corporation, P.O. Box 500, Blue Bell, PA 19422. Telephone (215) 542-4011.

Teletype Corporation, 5555 Touhy Avenue, Skokie, IL 60076. Telephone (312) 982-2000.

Telex Computer Products, Inc., 3301 Terminal Drive, Raleigh, NC 27604. Telephone (919) 834-5251.

Telpar, Inc., 4132 Billy Mitchell, P.O. Box 796, Addison, TX 75001. Telephone (214) 233-6631.

Texas Instruments, Inc., Digital Systems Group, P.O. Box 1444, Houston, TX 77001. Telephone (713) 937-2000.

Tracor, Inc., 6500 Tractor Lane, Austin, TX 78721. Telephone (512) 926-2800.

Trans-Lux Corporation, 110 Richards Avenue, Norwalk, CT 06854. Telephone (203) 853-4321.

Trendata Corporation, 2362A Walsh Avenue, Santa Clara, CA 95051. Telephone (408) 727-4644.

Trendcom, 480 Oakmead Parkway, Sunnyvale, CA 94086. Telephone (408) 737-0747.

Western Union Data Services Company, 1 Lake Street, Upper Saddle River, NJ 07458. Telephone (201) 825-5000.

Xerox Corporation, 701 South Aviation Boulevard, El Segundo, CA 90245. Telephone (213) 679-4511.

Major Leasing Companies

Alanthus Data Communications Corporation, 6011 Executive Boulevard, Rockville, MD 20852. Telephone (301) 770-1150.

Carterfone Communications Corporation, 1111 West Mockingbird Lane, Dallas, TX 75247. Telephone (214) 630-9700.

Data Access Systems, Inc., 100 Route 46, Mountain Lake, NJ 07046. Telephone (201) 335-3322.

Randal Leasing Incorporated, 20710 Manhattan Place, Suite 100, Torrance, CA 90501. Telephone (213) 328-7460.

RCA Service Company, Division of RCA Corporation, Camden, NJ 08101. Telephone (609) 338-4129.

Western Union Data Services Company, 1 Lake Street, Upper Saddle River, NJ 07458. Telephone (201) 825-5000. □

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MANUFACTURER AND MODEL	Agile 4200 Series Data Terminals	Alanthus T-1210	Anderson Jacobson AJ 630	Anderson Jacobson AJ 832	Anderson Jacobson AJ 833
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No Optional Optional	Yes Opt. Opt. No	Yes No No No	Yes No Optional No	Yes No Optional No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	Yes Yes Opt. 4K, 8K, 16K buf- fer; opt dual floppy	No Yes Opt., diskette drive Yes Yes	Yes Yes Opt., diskette drive Yes No	Yes Yes Yes Yes
RS-232 auxiliary (second) I/O interface Portable case	No No	Standard No	Yes Yes	Yes No	Yes Yes
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	256 No	1000 No	1 character No	256; 2K opt. No	2K No
Parity checking/generation	Both standard	Both standard	Both standard	Both standard	Both standard
Polling/Addressing capability Automatic answer	Optional Optional	No No	No No	No No	No No
PRINTER CHARACTERISTICS Type Technique	Impact Daisy wheel	Impact 7 x 7 dot matrix	Non-impact 5 x 8 dot matrix	Impact Daisy wheel	Impact Daisy wheel
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132/158/variable 55 128 ASCII; APL opt. Standard 10/12/proportional 6/8/variable Frict./pin/tractor Standard Standard Bi-directional printing proportional spac- ing, justification	132 165 96 ASCII Standard 10 6 Tractor Standard Standard —	140 10/15/30 128 ASCII; APL opt. Standard 10 6 Friction Standard No Last character visibility	132/156 variable 10/15/30; 45 opt. 128 ASCII; APL opt. Standard 10/12 variable 6/8 variable Frict.; pin, tract. opt. Standard Yes High-speed ultraplot optional	132/225 30/45 See Comments Standard 10/12 variable 6/8 variable Frict.; (pin/tract.opt.) Standard Yes Bi-directional printing
KEYBOARD CHARACTERISTICS Keyboard arrangement	Typewriter	60-key typewriter	68-key typewriter	68-key typewriter	57-key typewriter
Character set Features	128 ASCII; APL opt. Char. repeat std.; numeric pad std.; N- key rollover std.	128 ASCII; APL opt. Numeric pad opt., char. repeat std.	128 ASCII; APL opt. Numeric pad opt.; char. repeat std.; N-key rollover std.	128 ASCII; APL opt. Char. repeat std.; numeric pad; pro- grammable keys opt.	128 ASCII; APL opt. 17-key numeric pad, 4-key controls
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 300/1200 8-level ASCII	Half/full duplex Asynchronous 110 to 4800 8-level ASCII	Half/full duplex Asynchronous 110/150/300 8-level ASCII	Half/full duplex Asynchronous See comments 8-level ASCII; EBCD opt.	Full-duplex Asynchronous 1200 8-level ASCII, 7-level EBCD/Corr.
Unit code structure Operator selectable speeds Block size Communications interface	10 bits/char. Standard Char. by char. RS-232-C std., 20/ 60-mA dc cur. loop No Optional	10/11 bits/char. Standard Char. by char. RS-232-C, 20-mA current loop Optional Optional	10/11 bits/char. Standard Char. by char. RS-232-C Optional Optional	9/10/11 bits/char. Standard Char. by char. RS-232-C; CCITT No Optional	10 bits/char. Standard Char. by char. RS-232-C; 20mA current loop No Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	200-288 190-260 3,995-5,995 — 8/77 Over 3,000 Agile & third party	110-185 105-170 2,195 — 6/78 — Alanthus	65-70 59-64 995-1,195 — 11/71 Over 3,000 Anderson Jacobson	140-175 135-165 3,495-4,864 — 2/76 Over 5,000 Anderson Jacobson	165-220 160-215 3,995-4,995 32 1980 — Anderson Jacobson
COMMENTS	Burroughs single polling interface option (B70 through B7800); HP 3000 term-type 15 protocol option	Flexible leasing and rental plans available	Answer-back option available; all prices are quantity one; month-to-month lease also available	Transmission speeds: 110/135/150/300/ 450; all prices are quantity one; month- to-month lease also available	Char. set: 96 ASCII/64 EBCD/ Corr./96 APL opt.; microprocessor driven; all prices quantity one; month-to-month lease available

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MANUFACTURER AND MODEL	Anderson Jacobson AJ 860	Anderson Jacobson AJ 862	Anderson Jacobson AJ 880	AT&T Teleprinter 1000	Bedford Computer Systems Inc. System 75 Model 10
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No Optional No	Yes No No No	Yes No No No	Yes No Optional No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes Yes Opt., diskette drive No No	Yes Yes Yes No Yes	No Yes Yes No Yes	Yes Yes No No No	Yes Yes Yes, add-on floppy disk Yes No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	350 No Both standard No No	2K No Both standard No No	130 No Both standard No No	1000 No Both standard No Standard	24 No Both standard No No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 6 x 9 dot matrix 132 10/60 std.; 120 opt. 128 ASCII; APL opt. Standard 10 6 Tractor Standard Yes Bi-directional print/ paper feed; opt. graphics char. set	Impact 5 x 9 dot matrix 132/225 150 or 180 std. See Comments Standard 10/12/15/17 6/8 variable Tractor Standard Yes Expandable char- acters	Impact 5 x 7 dot matrix 132/225 10/30 96 ASCII Standard 10/12/15/16.5 — Fric. (tractor opt.) Standard No Last character visibility	Impact 7 x 7 dot matrix 216 120 cps ASCII Standard 5 to 16.5 (8 settings) 2 to 12 (6 settings) Tractor Standard Standard Up to 6-part forms; logic seeking bidirec- tional printhead Teletypewriter	Impact Daisy wheel 158 45 128 ASCII Standard 6/12 (keyb.-select) 6/8 Fric.; pin/tract. opt. Standard Standard Plotting, bidirect. printhead, paper- out alarm
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	68-key typewriter 128 ASCII; APL opt. Char. repeat std.; numeric pad std.; true underscore	57-key typewriter 128 ASCII/128 APL 17-key numeric pad, 4-key controls, fully programmable	52-key typewriter 128 ASCII Numeric pad opt.; 14-key controls	62-key typewriter 128 ASCII 10-key numeric pad	62-key typewriter 128 ASCII Opt. 10-key numeric pad; n-key rollover
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 110-1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; CCITT No Optional	Half/full duplex Asynchronous 9600 8-level ASCII, 7-level EBCD/Corr. 10 bit/char. Standard Char. by char. RS-232-C; 20mA current loop No Optional	Full-duplex Asynchronous 300 8-level ASCII 10 bit/char. Standard Char. by char. RS-232-C; 20mA current loop No Optional	Half/full duplex Asynchronous 50 to 1800 7-bit ASCII plus parity 7 or 8 bits/char. Standard Char. by char. RS-232-C No No	Half/full duplex Asynchronous 300/1200 8-level ASCII 7 bits/char. Standard Char. by char. RS-232-C std.; current loop opt. No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	92-145 87-140 2,540-3,100 — 6/77 Over 1,500 Anderson Jacobson	130-165 125-160 2,800-3,400 38 1981 — Anderson Jacobson	70 65 1,295 18 July 1980 — Anderson Jacobson	— — — — 4th qtr. 1979 — AT&T	195 180 3,595 — 6/76 700 Bedford
COMMENTS	Desktop unit; answerback opt.; all prices are quantity one; month-to-month lease also available	See AJ 833 Comments	Microprocessor- driven; optional 16K editing buf- fer; all prices quantity one; month-to-month leasing available	Available from Bell Systems Operating Company; over 40 keyboard selectable fea- tures; self-test	Microprocessor- based

Teleprinter Terminals—Management Perspective and Equipment Specifications

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MANUFACTURER AND MODEL	Burroughs AP 300 Series Printing Terminals	Cal Datacom CD/300	Carterfone 5130	Carterfone 5150/5160	Carterfone 5340
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	No No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes No No No No No	No Yes Yes, RAM (4-20K) Standard No	No Yes Yes, cassette, floppy disk opt. No No	5150 5160 Yes, cassette, floppy disk opt. No No	No Yes Yes, cassette, floppy disk opt. No Yes
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	512-char. ring buffer No — Standard —	128 characters Standard Both standard Standard Standard	1K No Both standard No Standard	1K std.; 2-4K opt. No Both standard No Standard	None No Both standard No Standard
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 9 x 7 dot matrix Up to 132 Up to 90 Burr. Basic U.S./Can. Standard 6/8/12/16 6 std.; 1/24-in. incr. Pin Right/left justif. Top-of-page control Bidirect. printing, cartridge ribbon, out-of-paper detector	Impact 9 x 7 dot matrix Up to 132 30 96 ASCII Standard 10/13.2 6 Pin; friction Standard No Last char. visi- bility, low paper indicator	Impact 7 x 7 dot matrix 132 Up to 180 96 ASCII Standard 5 to 16.5 (8 settings) 2 to 12 (6 settings) Tractor Standard Vertical tabbing Bi-direct. printing, last char. visibility	Impact 7 x 7 half space matrix 217 160 96 ASCII Standard 5/6/8.25/10/12/16.5 6/8 Tractor Standard Vertical tabbing Bidirectional printing, self-test	Impact 7 x 9 dot matrix 217 10/30 96 ASCII Standard 10/12/13.2/16.5 2/3/4/6/8/12 Fric. std.; trac. opt. Standard Vertical tabbing Status printout, self-test
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	None — —	Typewriter 128 ASCII Char. repeat std., numeric pad std., N-key rollover	65-key typewriter 128 ASCII; APL opt. Multikey rollover, char. repeat std.; 18-key numeric/func. pad opt	60-key typewriter 128 ASCII 14-key numeric pad std.	58-key typewriter 128 ASCII 18-key numeric pad opt.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half duplex Async./sync. 1800 to 9600 8-bit ASCII 8/10 bits/char. No 256 char./block RS-232 (AP 310/320) dir. connect (311/312) No No	Half/full duplex Asynchronous 50/110/300 8-level ASCII; 5-level Baudot 7.5/10/11 selectable Standard Char. by char. RS-232-C, 20/60 mA dc current loop Standard No	Half/full duplex Asynchronous Up to 19,200 8-level ASCII 7 or 8 bits/char. Standard Char. by char. RS-232-C std.; 20-mA opt. No No	Half/full-duplex Asynchronous 300 to 9600 8-level ASCII 10 bits/char. Standard Char. by char. RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous 300 8-level ASCII 10 bits/char. Standard Char. by char. RS-232-C std.; 20mA opt. No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	99 — 2,350 — 4/78 — Burroughs	225-267 150-176 4,200-4,880 35-45 1/80 1800 Sorbus & dis- tributors	125-155 112-142 2,260-2,580 35 4/79 — Carterfone	103-130 — 2,280-2,650 35 — 150 Carterfone	57-71 — 1,190-1,450 21 — 201 Carterfone
COMMENTS	Journal (AP 310/ 311) or journal/vali- dation/receipting (AP 320/321) printers, document-present detector (AP 320/ 321); microproces- sor-controlled	Multi-microproces- sor-controlled; auto dialing	Modified DEC LA 120; alternate keypad mode permits 14 numeric keys to function as program function keys; foreign char. sets available; microprocessor-based	Microprocessor- based	Microprocessor- based

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MANUFACTURER AND MODEL	Carterfone Model 33	Carterfone LA 36	Centronics 704	Centronics 761	Computer Devices Minterm 1201, 1202, and 1203
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	No No No No	No No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes 8-level punched tape.; opt. cassette No No	No Yes 4K-16K RAM, cassette, floppy No No	Yes No No No No	Yes Yes No No No	1201 1202 & 1203 No No Standard
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	None No Gen. std.; checking opt. Optional Standard	16 No Both standard Optional Optional	256 No Yes No No	256 No Both standard No No	None No Checking only 1201 only No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact Full char. via rotating cylinder 72 10 64 ASCII No 10 6/3 Friction/pin No No —	Impact 7 x 7 dot matrix 132 10/15/30 96 ASCII; APL opt. Standard 10; 16.5 opt. 6 Tractor Optional Vertical tabbing opt. Last char. visi- bility, paper low opt.	Impact 7 x 7, 9 x 7, 9 x 9 dot matrix 132 180 64/96 ASCII Standard 10 6/8 Tractor No Yes, see comments Bidirectional logic-seeking printing	Impact 7 x 7, 9 x 7 dot matrix 132 60 64 ASCII/APL Optional 10 6 Tractor No Optional Bi-directional printing & last character visibility	Non-impact (thermal) 5 x 7 dot matrix 80/132 10/15/30 96 ASCII/APL opt. Standard 10 6 Friction No No —
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	53-key teletype 64 ASCII Char. repeat	58-key typewriter 128 ASCII Char. repeat std., APL opt.	None — —	IBM Selectric 96 ASCII/APL opt. Numeric pad, alternate APL, additional buffering	58-key typewriter 128 ASCII; 98 APL Char. repeat, APL std.; numeric pad
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full-duplex Asynchronous 110 8-level ASCII 11 bits/char. No Char. by char. 20mA std.; RS-232-C opt. Yes No	Half/full-duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Standard Char. by char. 20mA std.; RS-232-C opt. Optional No	Full duplex Asynchronous 110-9600 8-level ASCII 10/11 bits/second Standard 1 to 256 char./block RS-232-C; 20mA current loop No No	Half/full duplex Asynchronous Up to 9600 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop No No	Half/full duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop opt. Opt.; std. on 1203 Opt. 1201; std. 1203
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	59-76 — 250 32 — — Carterfone	79-125 — 900-1,600 24 1976 2037 Carterfone	Contact vendor Contact vendor 1,795-1,870 — — — Centronics	Contact vendor Contact vendor 1855(RO)/1965(KSR) — 2/77 — Centronics	75/85/100 65/75/90 1,385; 1,585; 1,985 — 2/76 — Computer Devices & Olivetti
COMMENTS		Microprocessor- based	Two-channel down- line loaded vertical formatting standard; 2 or 12 channel electronic VFU optional; contact vendor for lease and maintenance rates	Microprocessor- controlled; other prices vary with configurations selected	

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MANUFACTURER AND MODEL	Computer Devices Miniterm 1204 and 1205	Computer Devices Miniterm 1206	Computer Devices Miniterm 2300	Computer Transceiver Execuport 4000/4000D	Computer Transceiver Execuport 4000B
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes Mini-cassette, RAM	Yes Yes RAM, ROM	No Yes RAM, ROM	No Yes —	No Yes Yes, bubble memory
RS-232 auxiliary (second) I/O interface Portable case	No Standard	Standard Yes	Standard Yes	Optional Yes	Yes Yes
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	1000 Both standard	1000 Both standard	256 Both standard	No No	No Yes, limited
Parity checking/generation	Both standard	Both standard	Both standard	Both standard	Both standard
Polling/Addressing capability Automatic answer	No No	No Standard	No Standard	No No	No No
PRINTER CHARACTERISTICS Type Technique	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 9 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80/132 10/30/50 96 ASCII Standard 10 6 Friction Yes No —	80/132 50 128 ASCII/APL/cust. Standard 10/16 6 Friction Standard No Last character visibility, low paper indicator	80/132 160 128 ASCII/APL/cust. Standard 10/18.4 6 Friction Standard No Last character visibility, low paper indicator	80/136 10/30 95/128 ASCII/APL Standard 10 6/24 Friction Standard No Bidir. ¼ line stepping, out of paper alarm	80/136 10/30/40 ASCII/APL Standard 10/11 6/24 Friction Standard No Bidir. ¼ line stepping
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key typewriter	58-key typewriter	58-key typewriter	Teletype, type- writer, ASCII/APL	Teletype, type- writer, ASCII/APL
Character set Features	128 ASCII/APL alt. Char. repeat, APL & numeric pad std.	128 ASCII Char. repeat std., numeric pad, alt. alt. APL char. opt.	128 ASCII Char. repeat std., numeric pad alt. APL, prog. keyb. opt.	128 ASCII/APL Numeric pad std., LED print posi- tion readout, data logger	128 ASCII Numeric pad std., LED print posi- tion readout, char. repeat
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110/300/1200 opt. 8-level ASCII	Half/full-duplex Asynchronous Up to 9600 8-level ASCII	Half/full-duplex Asynchronous Up to 9600 8-level ASCII	Half/full-duplex Asynchronous 110/300 8-level ASCII	Half/full-duplex Asynchronous Programmable 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop opt. Opt.; std. on 1205 Std. on 1205	11 bits/char. Standard — RS-232-C; std., 20-mA opt. Standard Standard	11 bits/char. Standard — RS-232-C; std., 20-mA opt. Standard Standard	10/11 bits/char. Standard Char. by char. RS-232-C (2) Standard Standard	10/11 bits/char. Standard Char. by char. RS-232-C Standard Standard
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	145/165 135/155 2,985/3,385 — — — Computer Devices & Olivetti Provides 7K to 31K bytes of memory; cassette storage for 60K characters	275 — 4,985 6/78 — Computer Devices	140 — 2,775 10/81 — Computer Devices	158-166 149-161 3,495-3,795 312/year 8/78 3,000+ CTSI, Dow Jones	217-225 200-210 3,795-3,995 312/year 6/80 — CTSI, Dow Jones
COMMENTS		Available in 4 models: 1206, 1206/BCR, 1206/ DOS, 1206/PAT.		4000D is a direct connect/ direct dial unit; features keyboard entry of phone numbers, answer back option	Bubble memory unit

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MANUFACTURER AND MODEL	Computer Transceiver Execuport 4000G	Computer Transceiver Execuport Sherlock	Computer Transceiver Execuport 4080/4080D	Computer Transceiver Execuport 4741	Control Data 9317 and 9318 Matrix Printers
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	No No Yes No	No No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	No Yes No	No Yes No	No Yes —	Yes No No
RS-232 auxiliary (second) I/O interface Portable case	Optional Yes	Yes Yes	Optional Yes	Yes Std.; 16 lbs.	— No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	No No	No No	No No	Not required No	1000 No
Parity checking/generation	Both standard	Both standard	Both standard	Both	Checking only
Polling/Addressing capability Automatic answer	No No	No No	No No	No No	No Optional
PRINTER CHARACTERISTICS Type Technique	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Impact 7 x 7 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80/136 10/30 ASCII/APL Standard 10/11 6/8/24 Friction Standard No Bidir. ¼, ¾, full line stepping	80/136 10/30 ASCII/APL Standard 10 — Friction Standard No Bidir. ¼ line stepping	80/136 10/30 ASCII/APL Standard 10 6/24 Friction Standard No Bidir. ¼ line stepping, out of paper alarm	80/136 14.8/33.3 88 EBCD/APL Standard 10 6 Friction Standard No Out-of-paper alarm	132 180; 360 (9318) 64/96/128 ASCII Optional 10 6 Tractor Standard (9317) Optional —
KEYBOARD CHARACTERISTICS Keyboard arrangement	Teletype, type- writer, ASCII/APL 128 ASCII	Teletype, type- writer, ASCII/APL 128 ASCII	Teletype, type- writer, ASCII/APL 128 ASCII/APL	IBM 2741 style	—
Character set Features	Numeric pad std., LED print posi- tion readout, char. repeat Half/full-duplex Asynchronous 110/300 8-level ASCII	Numeric pad std., LED print posi- tion readout, char. repeat Half/full-duplex Asynchronous 110/300 8-level ASCII	Numeric pad std., LED print posi- tion readout, data logger Half/full-duplex Asynchronous 110/300 8-level ASCII	88 EBCD/APL Numeric pad std., print position read- out, char. repeat key	— — —
TRANSMISSION Mode Technique Speed, bits/second Code	10/11 bits/char. Standard Char. by char. RS-232-C opt.	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C (2)	Half duplex Asynchronous 134.5/300 7-level PTTC/EBCD	Simplex Asynchronous 150-9600 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C opt.	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C (2)	9 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. — Char. by char. RS-232-C
Integral modem Telephone coupler	Standard Standard	Standard Standard	Standard Standard	Standard Standard	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	170 161 3,795 312/year 4/80 — CTSI, Dow Jones	— — 4,995 — — — CTSI, Dow Jones	135-143 95-103 1,975-2,175 312/year 1/79 1,000+ CTSI, Dow Jones	158 149 3,495 312/year 10/78 600 CTSI, Dow Jones	— — 2,035; 2,535 (9318) — Jan./Feb. 1977 — Third party
COMMENTS	Graphics unit	Data encryption unit	4080D is a direct connect/direct dial unit; features keyboard entry of phone numbers, answer back option	Self test key; auto. line feed; micro- processor controlled; one-year warranty	Printers sold OEM only; accommodate 5-part forms 4 to 16.75 inches wide by 2 to 18 inches long

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MANUFACTURER AND MODEL	Data Access DASI 744	Data General DASHER TP1	Data General DASHER TP2	Dataroyal Model 5000	Dataroyal Model IPS 5000 A/C
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	Yes Yes No	Yes Yes No	Yes No No	Yes No No
RS-232 auxiliary (second) I/O interface Portable case	Yes Yes	— No	— No	No No	— —
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	— No	40 No	2000 No	80/136 No	80/136 No
Parity checking/generation	Yes	Yes	Yes	Checking	Checking only (5000C)
Polling/Addressing capability Automatic answer	— —	No Standard	No Yes	No No	No No
PRINTER CHARACTERISTICS Type Technique	Non-impact (thermal) 5 x 7 dot matrix	Impact 5 x 7 dot matrix	Impact 7 x 9 dot matrix	Impact 9 x 9 dot matrix	Impact 9 x 9 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80 10/30 64/96 ASCII; APL Optional 10 6 Friction No No Switchable EIA port, parity switch	132 10/15/30; 30/60 96 ASCII Standard 10 6 Tractor No Optional View mode	132/220 180 96 ASCII Standard 10/16.5/5/8.25 6/8 Tractor Standard Standard Logic-seeking bidirect. printhead, last char. visibility, paper out indicator	80/136 125 96 ASCII Yes 10 6/8 Tractor No No Bidirect. print., last char. visib., low paper indic.	80/136 150(5000A); 165(C) 96 ASCII Standard 10/17.2 (opt. 5000A) 6/8 (opt. for 5000A) Tractor Standard for 5000C — Bidirectional print- ing, int. char. sets, auto print to end of form
KEYBOARD CHARACTERISTICS Keyboard arrangement	Typewriter	Typewriter	Typewriter	—	None
Character set Features	64 ASCII std. Full ASCII and APL optional	128 ASCII Character repeat, numeric pad std.	128 ASCII Character repeat, 14-key data entry pad std.	— —	— —
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110/300 8-level ASCII	Full duplex Asynchronous 110/150/300/600 8-level ASCII	Full duplex Asynchronous 110-4800 selectable 8-level ASCII	Half/full duplex Asynchronous 110-9600 7-bit ASCII	Half/full duplex Asynchronous 110-9600 7-bit ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232 switch	10/11 bits/char. Standard Char. by char. RS-232C; 20-mA dc current loop	10/11 bits/char. Standard Char. by char. RS-232C; 20-mA, CCITT V24	10/11 bit/char. Standard Char. by char. RS-232C; 20/60-mA dc current loop	— Standard Char. by char. RS-232C; also, 20mA loop for 5000A
Integral modem Telephone coupler	Integral complex —	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	80-90 75-85 1,495-1,670 — 1000 DASI	— — 2,200-2,650 — 11/76	— — 4,050-4,400 — 6/79	— — 1,000 — 11/79	— — 1,160-1,695 — 6/81
COMMENTS	Produced by Texas Instruments as Model 743; equipped with integral modem by DASI	Data General & third party Built by Data General	Data General & third party Built by Data General	Dataroyal & third party Microprocessor- based	Dataroyal & third party Microprocessor- based; 5000A: front or bottom paper feed, opt. quietized cabinet, multitap transformer; 5000C: oper.-select. print styles, X-on, X-off or busyline protocols; expanded buffer avail. for both

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MANUFACTURER AND MODEL	Dataroyal Model 7000	Data Terminals & Communications DTC-302	Data Terminals & Communications DTC-382	Design 100 CT45 & CT55	Diablo 1640
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No Yes No	Yes No Yes No	Yes No Optional No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes No No	Yes No —	No Yes Diskette optional	Yes Yes No	Yes Yes No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	Optional No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	3500 No Checking Yes No	128 No Both standard No No	256 Both standard Both standard No Optional	256 No Checking only Optional Optional	256 std., 2304 opt. Opt., character only Both standard No No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 3 x 7, 5 x 7, 7 x 7, 9 x 7 dot matrix 80/136 120-200 64/96 ASCII Yes 10/16.5 6/8, 6/10 Tractor Standard Yes Bidirect. print., foreign chars., bar codes	Impact Plastic daisy wheel 132/158 45/55 128 ASCII Standard 10/12 6/8 Friction; pin opt. Standard Standard Tractor feed, incremental and vector plotting	Impact Plastic or metal daisy wheel 132/158 55 96 Standard 10/12/15 6/8 Friction Standard Standard Bi-directional printing, & prop. spacing	Impact Full char. printing via daisy wheel 132/158 45/55 96 ASCII/APL Standard 10/12/other 6/other Frict.; pin/tract. opt. Standard Standard Bi-directional printing & paper feed, proportional spacing	Impact Plastic daisy wheel 132/158 45 ASCII, APL, others Standard 10/12 std., others 6 std., others Frict./pin/tractor Standard Standard Std. graphics; opt. vector plotting; word process. enhance. opt.
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter 96 ASCII 32 char. display, 200 char. buffer	— — —	Typewriter 128 ASCII Char. repeat, numeric pad std.; prog. keys opt.	Typewriter 128 ASCII Char. repeat & numeric pad std.	Typewriter, European; several styles ASCII/APL/specials Numeric pad, character repeat, operator control panel
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 110-9600 7-bit ASCII 10/11 bit/char. Standard Char. by char. RS-232C; 20/60-mA dc current loop No No	Half/full duplex Asynchronous 110 to 1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232C; 20-80-mA dc current loop Optional Optional	Half/full duplex Asynchronous Up to 9600 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232C; 20-mA passive current loop No Optional	Half/full duplex Asynchronous 110 to 1200 8-level ASCII; 6-level BCD 10/11 bits/char. Standard Char. by char. RS-232C; 20/60-mA dc current loop No No	Half/full duplex Asynchronous 110 to 9600 7-bit ASCII; EBCDIC, BCD, Corresp. opt. 9/10/11 bits/char. Standard Char. by char. RS-232C/CCITT, V.24/TTL (RO only) No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 2,000-3,000 — 12/78 — Dataroyal & third party	— — 3,575 — 1/76 1000 DTC & Dow Jones	164-167 158-161 4,350-4,625 36 9/77 — DTC & Dow Jones	— — 3,250; 3,725 (55) — 9/77 — Third party	— — 3,360 KSR/2,990 RO — 4/79 — Sorbus
COMMENTS	Microprocessor- based; change- able proms; key- board non-inter- active on site only	Employs Diablo HyType II printer; APL type fonts available; other transmission speeds & codes optional	Employs Diablo HyType II printer; microprocessor- based unit; rental charges include maintenance	A desk-top unit with Z80 micro- processor; also pro- vides auto text justification, incre- mental & vector plotting	OEM versions also available; sold through distributors only

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	Diablo 1650	Diablo 630	Di/An Controls Models 60 and 120	Di/An Controls Model 8170	DIGI-DATA 2511RO/ 2516KSR
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No Optional No	Yes No No No	Yes No No No	Yes Yes No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes Yes No No No	Yes No No No No	Yes Yes Punched tape Optional No	Yes Yes No Optional No	Yes (2511) Yes (2516) Yes; 250 bytes standard Yes No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	256 std., 2304 opt. Opt., character only Both standard No No	768 std., 2,688 opt. — Both standard No No	68 to 2K No Standard No Optional	68 to 2K No Optional Optional Optional	2000 No Yes No No (2511); Std. (2516)
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact Metal daisy wheel 132/158 40 ASCII, APL, others Standard 10/12 std., others 6 std., others Frict./pin/tractor Standard Standard Std. graphics, opt. vector plotting, word process. enhance. opt.	Impact Plastic & metal daisy wheel 132/158/198 32 128 ASCII Standard 10/12/15 std., others 6 std., others Friction/pin/tractor Standard Standard Std. graphics; opt. vector plotting; word process. enhance. opt.	Impact 7 x 7 dot matrix 132 60/120 (Mdl. 120) 96 ASCII Standard 10 6 Tractor Optional Optional View key, paper out switch std.	Impact 7 x 7 dot matrix 132 100 96 ASCII Optional 10 6 Tractor Optional Optional —	Impact 7 x 9 dot matrix 132/144/158/176 150/200 96 ASCII Standard 10/10.9/12/13.3 6/8 Tractor Standard No Bidirectional print, last char. visibility, super- script 66-key typewriter
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter; European; several styles ASCII/APL/specials Numeric pad, character repeat, operator control panel	— — —	64-key typewriter 128 ASCII Char. repeat std.; APL, numeric pad opt.	Typewriter 128 ASCII —	128 ASCII Numeric keypad std.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 110 to 9600 7-bit ASCII; EBCDIC BCD, Corresp. Opt. 9/10/11 bits/char. Standard Char. by char. RS-232-C/CCITT, V.24/TTL (RO only) No No	Half/full duplex Asynchronous 110 to 9600 7-bit ASCII 9/10/11 bits/char. Standard Char. by char. RS-232-C/CCITT V.24std., cur. loop opt. No No	Half/full duplex Asynchronous 10/15/30/60/120 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop No No	Half/full duplex Async./sync. Up to 9600 8-level ASCII 10/11 bits/char. Optional Char. by char. RS-232-C; 20-mA dc current loop No No	Half/full-duplex Asynchronous 110-19,200 8-level ASCII 10 bits/char. Standard Char. by char. RS-232-C; 20mA opt. No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 3,435 KSR/3,065 RO — 2/79 — Sorbus	— — 1,705/500 units — 4/80 — Third party	Contact vendor Contact vendor 1,500-3,000 — 3/76 2000 Di/An & third party Push tractor option	Contact vendor Contact vendor 2,300-3,000 — 12/76 1000 Di/An & third party Designed as PARS airline passenger ticket printer	— — 1,710-1,990 — 11/80 — Third party
COMMENTS	OEM versions also available; sold through distributors only	OEM versions also available; sold through distributors and OEM manu- facturers only			Opt. foreign char- acter sets (U.K., French, German, Swedish); low paper indicator; prints true descenders

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Digital Equipment LA 34/LA 38 DECwriter IV	Digital Equipment LA 35/LA 36 DECwriter II	Digital Equipment LA 120 DECwriter III	Digital Equipment LA 180	DMC Systems DMC 1990
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes Yes No Yes
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes Yes No	LA 35 LA 36 4K-16K RAM	Yes Yes 4K-16K RAM	Yes No No	No Yes 4K RAM
RS-232 auxiliary (second) I/O interface Portable case	No Yes	No No	No No	No No	Standard Yes
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	128 No — — —	16 No Both standard No No	1K std., 4K opt. No — — —	256 No Checking only No Yes	4K RAM Keyboard, character only Both standard Standard Optional
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 9 x 7 dot matrix Up to 215 Up to 30 96 ASCII; APL opt. Standard 10 to 16.5 (4 settings) 2/3/4/6/8/12 Platen, tractor Yes Optional Optional graphics character set	Impact 7 x 7 dot matrix 132 10/15/30 96 ASCII; APL opt. Standard 10; 16.5 opt. 6 Pin No No Tractor feed, APL set; auto line feed opt.	Impact 7 x 7 dot matrix Up to 216 180 96 ASCII; APL opt. Standard 5 to 16.5 (8 settings) — Tractor Yes Yes —	Impact 7 x 7 dot matrix 132 180 96 ASCII; APL opt. Standard 10; 16.5 opt. 6 Tractor No No Top-of-form	Impact Metallized daisy wheel 132/158 — 88 BCD, 96 ASCII Optional 10/12 6/8 Friction Standard Standard Bi-directional printing
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter 128 ASCII Num. pad (LA38 only)	58-key typewriter 128 ASCII Char. repeat & Break std.; numeric pad opt.	Typewriter 128 ASCII Numeric pad, logic-seeking bidirectional printhead	None — —	Typewriter & num. pad & ASR 33 compat. 88 BCD, 96 ASCII Char. repeat, numeric pad std.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 110/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop — —	Half/full duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 50 to 9600 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop — —	Simplex Asynchronous Up to 9600 8-level ASCII 10/11 bits/char. No Char. by char. RS-232-C; 20-mA dc current loop No No	Half/full-duplex Asynchronous Up to 1200 6-level BCD, 8-level ASCII 9/10 bits/char. Standard 4K RS-232-C, 60mA Standard Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 1,450; 1,750 — 10/78 — DEC & third party	— — 2,475-2,970 (base) — — 200,000 DEC & third party	— — 2,750-2,800 — 10/78 — DEC & third party	— — 4,455 — 1/76 — DEC & third party	— — 4,500-5,300 41 6/81 — DMC Systems
COMMENTS	Table-top unit; self test	Provides 60-cps catch-up feature	14 speeds plus 8 split baud rates; pedestal mounted; self test		Designed for consumer finance industry; compatible with IBM 1980, DMC 220A & DMC 2100; CRT expandable

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	DMC Systems DMC 2100	Extel AH Series	Extel B 208L	Extel B 305 S	Extel B 315 Series
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes—opt. port 2740-2 opt. No Yes	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes Yes Up to 3.7K RAM	Yes No No	No Yes No	No Yes 4K/8K memory	No Yes Punched tape, 4K/ 8K memory
RS-232 auxiliary (second) I/O interface Portable case	Opt., ASR-33 compat. No	Yes No	No No	No No	Yes No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	Up to 3.7K By keyboard, char. only	64 No	64 No	64 Optional	128 Optional
Parity checking/generation	Both standard	Checking optional	Both optional	Both optional	Both optional
Polling/Addressing capability Automatic answer	Yes, ACP (PARS-F) Optional	Optional Optional	Optional Optional	Optional Optional	Optional Optional
PRINTER CHARACTERISTICS Type Technique	Impact Metalized daisy wheel	Impact 5 x 7 dot matrix	Impact 5 x 7 dot matrix	Impact 5 x 7 dot matrix	Impact 5 x 7 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132/158 40 88 BCD, 96 ASCII Optional 10/12 6/8 Friction, split platen Standard Standard Forms "look-ahead" for improved speed	69/74/80 15/30 ASCII/Baudot Optional 10/11/12 4.4/6 (tractor) Friction; pin opt. Optional Optional Last character visibility, low- paper indicator	69/74/80 Up to 30 ASCII/Baudot Optional 10/11 4.4 Friction No No Boldface chars. & ½- line feed, last char. visib., low-paper ind.	69/74/80 Up to 30 ASCII/Baudot Optional 10/11 4.4 Friction No No Boldface char. & ½- line feed, last char. visib., low-paper ind.	69, 72, 74 30 Baudot No 10/11 4.4 or 6 Friction No No Opt. CRT display to memory, last char. visibility
KEYBOARD CHARACTERISTICS Keyboard arrangement	Typewriter & numeric pad&ASR-33 compat.	None	58-key typewriter	58-key typewriter	58-key typewriter
Character set Features	88 BCD, 96 ASCII char. repeat std., numeric pad std.	— —	128 ASCII/64 Baudot Programmable keyboard opt.	128 ASCII/64 Baudot Programmable keyboard opt.	64 Baudot Programmable keyboard opt.
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous Up to 1200 6-level BCD/7-level ASCII (switchable) 9/10 bits/char.	Half/full duplex Asynchronous 300 See Comments	Half/full duplex Asynchronous 45-300 See Comments	Half/full duplex Asynchronous 45-300 See Comments	Half/full duplex Asynchronous 45-300 5-level Baudot
Unit code structure Operator selectable speeds Block size Communications interface	No Up to 3.7K bytes RS-232-C, 60-mA current loop Opt.; 202 equiv. Opt.	7.42/7.5/8.5/10/11 Standard; any 3 Char. by char. RS-232-C; 20/60-mA dc current loop; DLC Optional No	10/11 bits Standard; any 3 Char. by char. RS-232-C; 20/60-mA dc current loop Optional No	7.5/10/11 bits Standard; any 3 Char. by char. RS-232-C; 20/60-mA dc current loop Optional No	7.5 bits/char. Standard; any 3 Char. by char. RS-232-C, CCITT V.21 Optional No
Integral modem Telephone coupler	Opt.	No	No	No	No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 5,900-6,500 — 3/79 1,500 DMC	See Comments — 1,760-2,220 — 1972 80,000 RCA, Dow Jones, TLC	See Comments — N/A — 12/75 — RCA, Dow Jones, TLC	See Comments — N/A — 1/76 — RCA, Dow Jones, TLC	See Comments — 3,070-6,570 — 1977 — RCA, Dow Jones, TLC
COMMENTS	Designed for con- sumer finance industry; compatible with IBM 1800 and DMC 220A	Codes include 5-level Baudot or 8-level ASCII; leased by Teleprinter Leasing Corp. (Northbrook, IL); microprocessor-based	Codes include 5-level Baudot or 8-level ASCII; a microproc- essor-based unit; leased by Teleprinter Leasing Corp. (Northbrook, IL)	Codes include 5-level Baudot or 8-level ASCII; a microproc- essor-based unit; leased by Teleprinter Leasing Corp. (Northbrook, IL); multiple enhance- ments due September	A microprocessor- based unit; leased by Teleprinter Leasing Corp. (Northbrook, IL)

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Extel B 318 Series	Facit Model 4540	Facit Model 4542	General Electric TermiNet 30	General Electric TermiNet 200
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	No No No No	No No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes Punched tape, 4K/ 8K memory Yes No	Yes No No Yes No	Yes No Yes Yes No	Yes Yes Punched tape, cassette tape No No	Yes Yes Punched tape, cassette tape No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	128 Optional Both optional Optional Optional	Opt., up to 8K No Both standard Optional No	Up to 8K — Yes Optional No	None No Yes No Optional	1024 No Checking strappable Optional Std., strap function
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 5 x 7 dot matrix 69, 72, 80 30 ASCII Optional 10/11 3, 4.4, or 6 Friction No No Opt. CRT display to memory, last char. visibility	Impact 9 x 9 dot matrix 155 250 179 ASCII Standard 10 6 Tractor Standard Standard, 4 ch. VFU Bi-directional print- ing, last char. visibil- ity, end of paper indicator	Impact 9 x 9 dot matrix 150 250 128 ASCII, opt. APL Standard 10 or proportional 6 or 8 Tractor Standard Electronic VFU Bi-directional printing, end of paper alarm	Impact 7 x 9 dot matrix 80; 132 opt. 10/20/30 64/96 ASCII Optional 10; 16.5 opt. 6/3 Pin No Optional —	Impact 7 x 9 dot matrix 136; 176; 204; 224 10/20/30/120 94 ASCII Standard 10, 12.94, 15, 16.5 6/8 (switch setting) Tractor std. Optional Opt., 8-channel Front/rear feed, last char. visibility, 20- ips paper slew
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	58-key typewriter 128 ASCII Programmable keyboard opt.	None — —	None — —	Typewriter 128 ASCII Char. repeat std.; numeric pad opt.	Typewriter 128 ASCII; APL opt. Char. repeat std.; numeric pad opt.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 45-300 8-level ASCII 10/11 bits/char. Standard; any 3 Char. by char. RS-232, CCITT V.24 Optional No	Simplex/full duplex — 600-9600 — 5-11 bits — — RS-232-C; 20/60-mA dc current loop No No	Full duplex Async./sync. 600-9600 ASCII 5-11 bits Yes — RS-232-C No No	Half/full duplex Asynchronous 110-1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/200/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop No Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	See Comments — 3,370-6,870 — 1979 — RCA, Dow Jones, TLC	— — 3,000-4,000 — 1977 2,500 Facit	— — 3,500-5,500 — — — Facit	83 (RO); 88 (KSR) 79; 84 2,010; 2,295 — 3/75 — General Electric	125 (RO); 135 (KSR) 119; 128 2,160; 2,350 — 5/78 2000 General Electric
COMMENTS	A microprocessor- based unit; leased or rented by Teleprinter Leasing Corp. (Northbrook, IL)	Microprocessor con- trol; 188-character Katakana, OCR-A and other character sets available	Graphics/scanning, bar code, var. size character & other character sets available		200-cps catch-up print rate

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	General Electric TermiNet 300	General Electric TermiNet 1200	General Electric TermiNet 1232	General Electric TermiNet 2030	General Electric TermiNet 2120
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes Yes Punched tape, cassette tape No No	Yes Yes Punched tape, cassette tape No No	Yes Yes Punched tape, cassette tape Standard No	Yes Yes Yes, 32K edit buffer opt. No No	Yes Yes Yes, 32K edit buffer opt. No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	None No Generate std.; checking opt. Optional Optional	None No Generate std.; checking opt. Optional Optional	1000 No Checking standard Optional Optional	640 Optional Both standard No Standard	— Optional Both standard No Standard
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact Full character print- ing via type belt 80; 118 opt. 10/15/30; 20 opt. 94 ASCII Standard 10 6/3 Friction; pin/tract. opt. Optional Optional —	Impact Full character print- ing via type belt 80; 120 opt. 10/30/120 94 ASCII Standard 10 6/3 Tractor Optional Optional —	Impact Full character print- ing via print belt 132 10/15/30/120 94 ASCII Standard 10 6; 8 opt. Tractor Standard Standard Front/rear paper feed & low paper indicator std.	Impact 9 x 7 dot matrix 132 30/60 94 ASCII Standard 10/13.2/16.5 2/3/4/6/8/12 Friction; pin/tract. opt. Standard Standard Bidirect. print., last char. visib., LED print position ind.	Impact 9 x 7 dot matrix 132 120/150 94 ASCII Standard 10/13.2/16.5 2/3/4/6/8/12 Friction; pin/tract. opt. Standard Standard Bidirect. print., last char. visib., LED print position ind.
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter 128 ASCII Char. repeat std.; numeric pad opt.	Typewriter 128 ASCII Char. repeat std.; numeric pad opt.	Typewriter 128 ASCII Char. repeat std.; APL & numeric pad opt.	63-key typewriter 128 ASCII Char. repeat std.; numeric pad opt., APL char. set opt.	63-key typewriter 128 ASCII Char. repeat std.; numeric pad opt., APL char. set opt.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/150/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C std., 20/ 60-mA cur. loop opt. Optional Optional	Half/full duplex Asynchronous 110/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C std., 20/ 60-mA cur. loop opt. Optional Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	105 (RO); 112 (KSR) 92; 99 4,380; 5,080 — 7/69 — General Electric	124 (RO); 138 (KSR) 118; 131 5,370; 6,265 — 10/72 — General Electric	155 (RO); 175 (KSR) 147; 166 4,191; 4,548 — 9/77 — General Electric	70 (RO); 74 (KSR) 67; 70 1,175-1,250 — 11/80 — General Electric	— — 2,120; 2,195 — 6/81 — General Electric
COMMENTS	Speeds of 20/60 cps (200/600 bps) are optional	Speeds of 20/60 cps (200/600 bps) are optional		Dual 8085 micro- processors; speed up to 9600 bps when using op- tional text editor or line buffer	Dual 8085 micro- processors; speed up to 9600 bps when using optional text editor or line buffer

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Hewlett-Packard 2631B & 2635B	Honeywell TWU 1001	Honeywell TWU 1005	Honeywell TWU 1901	IBM 2740 Models 1 and 2
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	No No No No	No — — —
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes (2631B) Yes (2635B) No	Yes (PRU 1001) Yes No	Yes (PRU 1005) Yes No	Yes (PRU 1901) Yes No	No Yes No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	256 No	64 No	1000 No	960 No	120/246/440 opt. Optional
Parity checking/generation	Both standard	Standard	Standard	Standard (VIP protocol) Standard	Both
Polling/Addressing capability Automatic answer	No No	No No	No No	No No	Yes No
PRINTER CHARACTERISTICS Type Technique	Impact 7 x 9 dot matrix	Impact 7 x 9 dot matrix	Impact 7 x 7 dot matrix	Impact 7 x 9 dot matrix	Impact Full char. printing via IBM Selectric mechanism
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	56/68/136/170/227 180 128 ASCII Standard 4.16/8.33/16.7 1 to 72 (12 settings) Tractor Standard 16 channel computed Bi-directional printing, vertical tabs, margins	132 30 96 ASCII Standard 10 6 Tractor Standard Standard Last char. visibility	132 120 96 ASCII Standard 10 6 Tractor Standard Vertical tabbing std. 2-channel VFU, last char. visibility	132 120 96 ASCII Standard 10 6 Tractor Standard Vertical tabbing std. Last character visibility	130 14.8 88; see comments Standard 10/12 6/8 Friction; pin opt. No No Split friction platen & ledger card handler opt.
KEYBOARD CHARACTERISTICS Keyboard arrangement	Typewriter	60-key typewriter	60-key typewriter	86-key typewriter	55-key typewriter
Character set Features	128 ASCII 10-key numeric pad; 6-key control cluster	128 ASCII —	128 ASCII —	128 ASCII Numeric pad std.	88; see comments Character repeat Std.
TRANSMISSION Mode Technique Speed, bits/second Code	Full duplex Asynchronous 110 to 9600 7-bit ASCII	Full duplex Asynchronous 300 7-bit ASCII	Half/full duplex Asynchronous 1200 7-bit ASCII	Half/full duplex Synchronous Up to 4800 7-bit ASCII	Half duplex Asynchronous 134.5; See comm. See comments
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C	10 bits/char. No — RS-232-C std., 20- mA current loop opt.	10 bits/char. No — RS-232-C std., 20-mA current loop opt.	8 bits/char. No 960 RS-232-C	9 bits/char. No 1 to 440 chars. RS-232-C
Integral modem Telephone coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	Contact vendor — 3,900/4,300 — 5/80 — Hewlett-Packard	— — 2,470 29 1978 — Honeywell	— — 3,600 51 3/78 — Honeywell	— — 4,500 66 9/78 — Honeywell	130-203 — 3,930-6,025 64, 50 — — IBM
COMMENTS	Microprocessor- based; cartridge; multiple protocols; 2631B has other communication interfaces	Options include: print position indicator, paper stacker, pedestal with paper stacker	Options include: print position indicator, paper stacker, pedestal with paper stacker	Options include: print position indicator, paper stacker, pedestal with paper stacker	Model 2 can also operate at 75 or 600 bps (opt.); available with Correspond- ence, PTTC/BCD, or PTTC/EBCD code

Teleprinter Terminals—Management Perspective and Equipment Specifications

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MANUFACTURER AND MODEL	IBM 2741	IBM 3767 Models 1, 2, and 3	Kleinschmidt 7300	Lear Siegler 310 Ballistic Printer	Lexicon LEX-21
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	No — — —	No Optional Optional —	Yes No No No	No No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes No No No	No Yes No No No	Yes Yes Yes, 5-8 level punch tape Standard No	Yes No No No Yes	No Yes Yes No Yes
TERMINAL FEATURES Line buffer capacity, characters Editing, line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	— No Both No No	Dual 256-char. buffer Yes Yes Yes No	— — Checking only Optional Optional	512; up to 2048 opt. No — — —	2000 Both No No No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact Full char. printing via IBM Selectric mechanism 130 14.8 88; see comments Standard 10/12 6/8 Friction; pin opt. No No —	Impact 7 x 8 dot matrix 132 40, 80, or 120 88 EBCD; 96 ASCII Standard 10 6 Friction; pin opt. Standard Optional Alternate char. set opt.; APL & others	Impact Drum 69/72/80 40/30 64 ASCII; Baudot No 10 6 Optional Optional No Several options	Dot matrix 9 x 7 dot matrix 136 180 128 ASCII std. Standard 10 6/8 Tractor Standard Standard Bidir. printing paper out indi- cator	Non-impact 5 x 9 dot matrix 40 10/30 128 ASCII Standard 10 6 — Standard No —
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	55-key typewriter 88; see comments Character repeat std.	44-key typewriter 88 EBCD; 96 ASCII Character repeat	53-key typewriter 128 ASCII, Baudot Character repeat	None — —	56-key typewriter 128 ASCII Opt. external numeric pad
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half duplex Asynchronous 134.5 See comments 9 bits/char. No Char. by char. RS-232-C No No	Half duplex SDLC; async. opt. 300/600/1200/2400 8-level EBCDIC 8 bits/char. No Block or char. RS-232-C opt. Optional Optional	Half/full duplex Asynchronous 300 8-level ASCII, 5-level Baudot 10/11ASC.; 7/8Baud. Optional — RS-232-C, 20/60-mA, others optional No No	Half/full-duplex Asynchronous 75 to 9600 8-level ASCII 10 bits/char. Standard Line at a time RS-232-C, 20mA, parallel No Optional	Half/full-duplex Asynchronous 300 7-bit ASCII Programmable Standard Char. by char. See Comments Standard Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	130 — 2,745 69.50 — — IBM	217-345 — 6,390-9,060 63-102 2/75 — IBM	— — 5,380-8,490 (qty. 50) — — — Kleinschmidt	— — 2,045-2,645 32 — — Lear Siegler	— — 1,195 — 7/81 — Lexicon
COMMENTS	Available with Cor- respondence, PTTC/ BCD, or PTTC/EBCD code	Supersedes IBM 2740 & 2741 termi- nals; magnetic stripe reader opt.	Based on 1980 information	Foreign fonts (op- tional) available include U.K., Ger- many, Norway/Den- mark, Sweden/Finland, Mexico, Arabic, & ANPA; acoustic cover, paper tear cover, & pedestal opt.	Contains text editor, battery backup 2K mem- ory; small, portable, (easily fits into briefcase); con- nects directly to telephone

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	LogAbax LX 1010	Mannesmann Tally T-1612 KSR/RO	Mannesmann Tally T-1605	Mannesmann Tally MT-1805	Microdata Matrix Printer
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes Yes Yes Yes	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	No Yes No	Yes No No	Yes No No	Yes Yes No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	Up to 16K Both standard	1K std.; 4K opt. No	1K std.; 2K opt. No	1K std.; 2K opt. No	320 No
Parity checking/generation	Both standard	Both standard	Checking only	Checking only	Generation only
Polling/Addressing capability Automatic answer	Optional Optional	Optional Standard	Optional No	Optional No	No Optional
PRINTER CHARACTERISTICS Type Technique	Impact 9 x 7 dot matrix	Impact 7 x 7 dot matrix std., 7 x 9 dot matrix opt.	Impact 7 x 7 dot matrix std., 7 x 9 dot matrix opt.	Impact 7 x 7 or 40 x 18 dot matrix select.	Impact 9 x 7 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132/158/220 180 128 ASCII Standard 10/12/16.5 6 Friction; pin Optional Standard Tractor feed, 2nd tractor feed & front & front feed opt.	132/158/218 160 96 ASCII; APL opt. Standard 10/12/16.5 6/8 Tractor Standard Standard Bidir. print, last char. visibility, red/black opt.	132; 218 160 96 ASCII Standard 10/16.5 6/8 Tractor Standard Standard Bidir. print, forms length switch, red/ black opt.	132; 218 Select. 200 or 50 cps 96 ASCII & Intl. Standard 10/16.5 6/8 Tractor Standard 2-channel host Auto front feed	132; 158 opt. 165 96 ASCII Standard 10/12 6 Tractor Standard Standard Bi-directional print- ing & paper feed, graphic
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key typewriter	60-key typewriter	—	—	63-key typewriter
Character set Features	128 ASCII Char. repeat, numeric pad; func- tion keys	128 ASCII 14-key numeric pad & alt. char. opt.	—	—	128 ASCII Numeric pad
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 150-4800 5- to 8-level	Half/full-duplex Asynchronous 300-9600 8-level ASCII	Half/full-duplex Asynchronous 300 to 9600 8-level ASCII	Half/full-duplex Asynchronous 300 to 9600 8-level ASCII	Half/full duplex Asynchronous 110/300/1200 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	9/10/11 bits/char. Standard Block RS-232-C	10/11 bits Standard Char. by char. RS-232-C; 20/60-mA	10 bits Standard Char. by char. RS-232-C; 20/60-mA RS-422	10 bits Standard Char. by char. RS-232-C; 20/60-mA RS-422	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop
Integral modem Telephone coupler	Optional Optional	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	245-265 235-260 7,000-9,400 — 1976 Over 5000 LogAbax & third party	Contact vendor — 2,350-2,750 28 11/77 — Mannesmann Tally & third party	— — 1,995-2,245 28 5/80 — Tally & third party	— — 2,495 35 7/81 — Mannesmann Tally	— — 5,200 — 1974 Over 1,300 Microdata & third party
COMMENTS	Microprocessor con- trol; protocol emula- tion; total SNA/ SDLC compat- ibility; based on 1980 information	Microprocessor- based unit; can print double- width characters; uses ANSI codes for program control	Microprocessor- based unit; can print double- width characters; select X-on/ X-off or busy/ ready interface format.	Microprocessor- based; select X-on/X-off or Busy/Ready I/O; forms length select switch.	Microprocessor- control; parallel I/O option; dual char- acter set option; substantial dis- counts available on quantities

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	NCR 260 Series	NEC Information Systems 3510 and 3520	NEC Information Systems 3515 and 3525	NEC Information Systems 5510 and 5520	NEC Information Systems 5515 and 5525
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	260-8; 260-3 260-7; 260-5; 260-4 260-6; cassette tape	3510 3520 No	3515 3525 No	5510 5520 No	5515 5525 No
RS-232 auxiliary (second) I/O interface Portable case	No 260-5	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	256 (260-6 only) 260-6 only	256 Opt. (3520)	256 Opt. (3525)	256 No	256 No
Parity checking/generation	Both standard	Both standard	Both standard	Both standard	Both standard
Polling/Addressing capability Automatic answer	No Optional	No No	No No	No No	No No
PRINTER CHARACTERISTICS Type Technique	Non-impact 5 x 6 dot matrix (thermal)	Impact Full character printing via print thimble	Impact Full character printing via print thimble	Impact Full character print- ing via print thimble	Impact Full character print- ing via print thimble
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80 10/30/15 96 ASCII Standard 10 3 to 6 Friction Optional in 260-6 Standard —	136, 163, 204 & PS 30 96 ASCII std., 128 Standard 10/12/15/PS std. 6/8 std., up to 48 Fric./pin/tractor Standard Elec. VFU std. Bidirectional print & feed, last char. visibility	136, 163, 204 & PS 30 96 ASCII/128 opt. Standard 10/12/15/PS std. 6/8 std., up to 48 Fric./pin/tractor Standard Elec. VFU std. Bidirectional print & feed, last char. visibility	136; 163 55 94 ASCII std.; 128 opt. Standard 10/12 std.; up to 120 6/8 std.; up to 48 Fric./pin/tractor Standard Elect. VFU std. Bidirect. printing & paper feed; last char. visib., self test	136; 163 55 94 ASCII std.; 128 opt. Standard 10/12 std.; up to 120 6/8 std.; up to 48 Fric./pin/tractor Standard Elect. VFU std. Bidirect. printing & paper feed; last char. visib., self test
KEYBOARD CHARACTERISTICS Keyboard arrangement	57-key typewriter	58-key typewriter	58-key typewriter	58-key typewriter	58-key typewriter
Character set Features	128 ASCII Numeric pad std. with 260-6; Char. repeat	128 ASCII Char. repeat, numeric pad std.	128 ASCII Char. repeat, numeric pad std.	128 ASCII Character repeat, numeric pad	128 ASCII Character repeat, numeric pad
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110/150/300 8-level ASCII	Half/full-duplex Asynchronous 110 to 1200 (9600) 8-level ASCII	Half/full-duplex Asynchronous 110 to 1200 (9600) 8-level ASCII	Half/full duplex Asynchronous 110 to 1200 8-level ASCII	Half/full duplex Asynchronous 110 to 1200 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard 80-256 on 260-6 RS-232-C; acoustic	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop
Integral modem Telephone coupler	Optional on 260-6 Opt.; std. on 260-5	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	75-150 70-130 1,900-3,080 — 5/71 Over 10,000 NCR	— — 2,450-2,790 — 4/81 — NECIS & third party	— — 2,510-2,850 — 4/81 — NECIS & third party	— — 3,055-3,415 — 12/77 — NECIS & third party	— — 3,135-3,455 — 1/78 — NECIS & third party
COMMENTS	260-3 and 260-4 in- clude out-of-paper sensing and alarm	Microprocessor- (8085) based unit; ETX/ACK, X-on/ X-off reverse chan- nel protocols, pro- portional spacing lookup tables, opt. word processing assist enhancements	Microprocessor- (8085) based unit; ETX/ACK, X-on/ X-off reverse chan- nel protocols, pro- portional spacing lookup tables, opt. word processing assist enhancements	Microprocessor (8080) based unit; ETX/ACK, X-on/ X-off, reverse channel line protocol	Microprocessor (8080) based unit; Diablo 1610/1620, Xerox 1700/1710 compat. + interface; ETX/ACK, X-on/ X-off, ENQ/ACK, reverse channel protocol

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	NEC Information Systems 5540 APL Terminal	NEC Information Systems 7710 and 7720	NEC Information Systems 7715 and 7725	Okidata Slimline Series	Okidata Microline 80/82
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes Yes Yes No	Yes, receive only No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	5540 APL 5540 APL No	7710 7720 No	7715 7725 No	Yes No No	Yes No No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	256 No	256 std.; 2K opt. Opt. (7720)	256 std.; 2K opt. Opt. (7725)	192, 960, 1984 No	Opt. 256; 2048 No
Parity checking/generation	Both standard	Both standard	Both standard	Checking only	Checking only
Polling/Addressing capability Automatic answer	No No	No No	No No	Optional Yes	No No
PRINTER CHARACTERISTICS Type Technique	Impact Full character printing via print thimble	Impact Full character printing via print thimble	Impact Full character printing via print thimble	Impact 5 x 7, 9 x 7, 5 x 9, 9 x 9, 7x 9 dot matrix	Impact 9 x 9 dot matrix
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	136; 163 55 94 ASCII; 128 opt. Standard 10/12 std.; up to 120 6/8 std.; up to 48 Frict./pin/tractor Standard Elect. VFU std. Bi-direct. printing & paper feed; last char. visib., self test	136, 163, 204, & PS 55 96 ASCII; 128 opt. Standard 10/12/15/PS std. 6/8 std.; up to 48 Frict./pin/tractor Standard Elect. VFU std. Bidirectional print & feed, last char. visibility	136, 163, 204, & PS 55 96 ASCII; 128 opt. Standard 10/12/15/PS std. 6/8 std.; up to 48 Frict./pin/tractor Standard Elect. VFU std. Bidirectional print & feed, last char. visibility	132 See Comments 96 ASCII Standard 5/10 6/8 Tractor No 12-channel electronic 22 or 33-pin "shuttle bar"; head-pins spaced across 132 columns	80 at 10 cpi 80:80 cps; 82:120 cps 96 ASCII Standard 5/10/8.3/16.5 6/8 Friction/pin/tractor No 12-channel electronic Bidirect. print. (82), low paper indi- cator
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key typewriter	58-key typewriter	58-key typewriter	None	None
Character set Features	128 ASCII Character repeat, numeric pad	128 ASCII Char. repeat, numeric pad std.	128 ASCII Char. repeat, numeric pad std.	— —	— —
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110 to 1200 8-level ASCII	Half/full duplex Asynchronous 110 to 1200 (9600) 8-level ASCII	Half/full duplex Asynchronous 110 to 1200 (9600) 8-level ASCII	Half/full duplex Asynchronous 150-9600 (sw. select) 8-level ASCII	Half duplex Asynchronous Up to 9600 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60 mA	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60 mA	10/11 bits/char. Standard Char. by char. RS-232-C, 20mA	10/11 bits/char. Standard Char. by char. RS-232-C, 20/60- mA current loop
Integral modem Telephone coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 3,490 — 3/79 — NECIS & third party	— — 3,055-3,415 — 10/80 — NECIS & third party	— — 3,135-3,455 — 10/80 — NECIS & third party	— — 2,228-3,370 — 10/78 — Okidata & third party	— — 380-440 — — — Okidata & third party
COMMENTS	Microprocessor (8085) based unit; ETX/ACK, X-on/ X-off, reverse channel line protocol	Microprocessor- (8085) based unit; ETX/ACK, X-on/ X-off reverse channel protocols, proportional spac- ing lookup tables, opt. word proc- essing assist enhancements	Microprocessor- (8080) based unit; ETX/ACK, X-on/ X-off reverse channel protocols, proportional spac- ing lookup tables, opt. word proc- essing assist enhancements	Remote line printers with print rates of 25, 160, 250, 300 or 100 lpm; 60 x 72, 70 x 72, 100 x 100 dot addressable graphics available	64-block graphics characters; paper cut bar; 12 switch-selectable language charac- ter sets

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	Okidata Microline 83/84	Okidata 2350	Perkin-Elmer Data Systems 650/655	Perkin-Elmer Model 660 Graphics Printer	Printer Terminal Communications Corp. PRINTERM Model 877
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes, receive only No No No	Yes Yes Yes No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes No No	Yes No No	Yes No No	Yes No No	Yes No No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	Opt. 256; 2048 No	2048 No	1920 (650); 3840 (655) No	1920 No	256 Line delete
Parity checking/generation	Checking only	Checking only	No	No	Checking std.
Polling/Addressing capability Automatic answer	No No	Optional No	No No	No No	No No
PRINTER CHARACTERISTICS Type Technique	Impact 9 x 9 dot matrix	Impact 9 x 9 dot matrix	Non-impact (thermal) 7 x 11/9 x 12 dot (650); 7 x 9/ 9 x 12 dot (655)	Non-impact 7 x 9/9 x 12 dot matrix	Impact 9 x 7 dot matrix
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132 at 10 cpi 120 96 ASCII Standard 5/10/16.5 6/8 Friction/pin/tractor No 12-channel electronic Bidirect. print., low paper indicator	132 at 10 cpi 200 96 ASCII Standard 5/8.3/10/16.5 6/8 Tractor — 12-channel VFU & VT 2-color printing, downline loadable character set	80-160 (650); 80 (655) 80-100 96 ASCII (32 opt. 650) Standard 9 4 Friction (roll stock) No No —	80 80-100 96 ASCII Standard 9 4 No No No —	80 120 96 ASCII Standard 10 6 Friction/pin No No Bidirectional printing, demand forms
KEYBOARD CHARACTERISTICS Keyboard arrangement	None	None	None	—	—
Character set Features	— —	— —	— —	— —	— —
TRANSMISSION Mode Technique Speed, bits/second Code	Half duplex Asynchronous Up to 9600 8-level ASCII	Half-/full-duplex Asynchronous 150-9600 8-level ASCII	Full-duplex Asynchronous 300 to 9600 ASCII	Full-duplex Asynchronous 300 to 9600 ASCII	Simplex Asynchronous 300-9600 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C, 20/60- mA current loop	10/11 bits/char. Standard Char. by char. RS-232-C, 20mA	10 bits/char. Standard 1920 char. RS-232-C, 20mA current loop opt.	10 bits/char. Standard 1920 char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C
Integral modem Telephone coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	— — 695-1,000 — — — Okidata & third party	— — 1,495 — — — Okidata & third party	— — 1,262 — 9/77 Perkin-Elmer	— — 1,362 — 3/81 Perkin-Elmer	— — 1,145 — 1979 Factory
COMMENTS		72 x 72 dot addressable graphics; super script, subscript, pull tractor for special forms	Microprocessor- controlled; Model 655 follows tab, cursor control codes of P-E "Bantam" 550 CRT terminal; 3840 char. line buffer capacity optional for Model 650	Companion to Model 3500 intel- ligent terminal; follows tab, cur- sor controls codes of P-E "Bantam" 550 CRT terminal; microprocessor based	Microprocessor- controlled; TTL parallel, Burroughs TD 700 & TD 800, NCR 788-301 (ADDS 880A), 20mA inter- faces opt.; foreign char. sets avail- able

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Printer Terminal Communications Corp. PRINTERM Model 879	Qume Sprint 5	Qume Sprint 9/45, 55	Qume Sprint 9/35	Randal Leasing Inc. HyTerm
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes No No	Yes Yes No	Yes No No	Yes Yes No	No Yes Yes, floppy disk
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	256; 2K, 4K opt. Line delete	224 No	500 No	80 No	None No
Parity checking/generation	Checking std.	Both standard	Both standard	Both standard	Both standard
Polling/Addressing capability Automatic answer	No No	No No	No No	No No	Optional No
PRINTER CHARACTERISTICS Type Technique	Impact 9 x 7 dot matrix	Impact Full character print- ing via daisywheel	Impact Daisy wheel	Impact Daisy wheel	Impact Full char. printing via daisy wheel
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80/132 120/180 96 ASCII Standard 10/16.5 6 Fric./pin; trac. opt. No Via software Bidirect. print., double width characters	132/158/others 45/55 96 ASCII Standard 10/12/others 6/others Fric.; pin/tract. opt. Standard Standard Incremental plotting and self-test	132, 158 (prog.) 45/55 96 ASCII Standard 10/12/15 propor. 3/6/8 (prog.) Fric.; bidir. tractor Standard Standard Bidirectional print, incremental plotting	132, 158 (prog.) 35 96 ASCII Standard 10/12/15 propor. 6/8 (prog.) Fric.; bidir. tractor Standard Standard Bidirectional print, plotting	132 10/15/30/45 96 ASCII; APL opt. Standard 10/12 6/8 Friction/pin Optional Optional Tractor optional
KEYBOARD CHARACTERISTICS Keyboard arrangement	—	78-key typewriter	None	54-key typewriter	58-key typewriter
Character set Features	— —	128 ASCII Char. repeat & numeric pad std.	— —	128 ASCII Char. repeat std.	96 ASCII, APL opt. Numeric pad std.
TRANSMISSION Mode Technique Speed, bits/second Code	Simplex Asynchronous 300-9600 8-level ASCII	Half/full duplex Asynchronous See comments 8-level ASCII	Half/full duplex Asynchronous — 8-level ASCII	Half/full duplex Asynchronous — 8-level ASCII	Half/full duplex Asynchronous 110/150/300/1200 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Yes Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop
Integral modem Telephone coupler	No No	No No	No No	No No	No Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 1,299 — 1979 — Factory	— — 2,000-3,450 39-41 1977 — Qume & Sorbus	Purchase only — 2,455-2,555 24 5/81 — GE/Qume	Purchase only — 1,995-2,095 24-26 7/81 — GE/Qume	135 125 — 35 3/76 — Randal & third party
COMMENTS	Microprocessor- controlled; TTL parallel, Burroughs TD 700 & TD 800, NCR 788-301 (ADDS 880A), 20 mA inter- faces opt.; foreign char. sets avail- able	Microprocessor- based unit; trans- mission speeds of 110, 150, 300, 600, & 1200 bps are operator-selectable			Produced by Diablo; diagnostics std.; APL opt.

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	Randal Leasing, Inc. LA 34	Randal Leasing, Inc. LA 36	Randal Leasing, Inc. LA 120/ RL120	RCA Service Co. Teletype 43	RCA Service Co. Terminet 200
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	No Yes No	No Yes Yes; floppy disk	Yes Yes Yes; 2K, 4K, 8K, 16K, or 20K	Yes Yes RAM, cassette tape
RS-232 auxiliary (second) I/O interface Portable case	No Yes	No No	Standard No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	None No	None No	1K; expand. to 5K No	1K to 20K Yes	1024 Both standard
Parity checking/generation	No	None	Both standard	Odd/even parity generation optional	Both standard
Polling/Addressing capability Automatic answer	Optional Optional	Optional Optional	No Yes	No Yes	No Standard
PRINTER CHARACTERISTICS Type Technique	Impact 9 x 7 dot matrix	Impact 7 x 7 dot matrix	Impact 7 x 7 dot matrix	Impact 7 x 9 dot matrix	Impact 7 x 9 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132 30 128 ASCII No 10 12 Pin Standard Optional —	132 30 64 ASCII No 10 6 Pin Optional Optional —	Up to 218 Up to 180 128 ASCII Yes 5 to 16.5(keyb.select.) 2 to 12 (6 settings) Tractor Yes Yes, keyboard select. Bidirectional print- head; out-of-paper ind.; last char. visib.	Up to 132 30 96 ASCII Standard 10 (friction), 13 (pin) 6 Friction/pin Std.(buffered version) Std.(buffered version) Last char. visibility low-paper alarm	Up to 224 10/20/30/120 94 ASCII Standard 10/12.94/15/16.5 6/8 (switch setting) Tractor Optional Opt. 8-channel Front/rear feed, last char. visi- bility, 20 ips paper slew Typewriter
KEYBOARD CHARACTERISTICS Keyboard arrangement	65-key typewriter	Typewriter	Typewriter	58-key typewriter	Typewriter
Character set Features	128 ASCII Char. repeat & break std.; numeric pad opt.	96 ASCII Char. repeat & break std.; numeric pad std.	128 ASCII; APL opt. Key click, n-key roll- over, 18-key numeric pad, character repeat	128 ASCII Char. repeat std.; numeric pad std. on buffered version	128 ASCII Char. repeat std.; numeric pad opt.
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full-duplex Asynchronous 110/300 8-level ASCII	Half/full duplex Asynchronous 110/150/300 8-level ASCII	Half/full duplex Asynchronous 50 to 9600 7-bit ASCII + ANSI- compat. escape seq.	Half/full duplex Asynchronous See comments 8-level ASCII	Half/full duplex Asynchronous 110/200/300/1200 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C std., 20 mA opt.	10/11 bits/char. Standard Char. by char. RS-232-C	— Standard Char. by char. RS-232-C; 20-mA	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C, 20mA
Integral modem Telephone coupler	No Optional	No Optional	No No	Optional Optional	No Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	95 80 — 19 — — Randal Leasing Inc.	65 63 — 25 6/73 Over 16,000 Randal & third party	178; 90 135; 85 — 35 4/79 — Randal & third party	69-149 66-142 — — 1/79 — RCA Service Co.	141-228 134-216 — Included 1978 — RCA Service Co.
COMMENTS	Produced by Digital Equipment Corp.	Produced by Digital Equipment Corp.	Produced by Digital Equipment Corp.; LED display for next char. to print; 5 selectable proto- cols; self test; foreign char. sets opt.; microprocessor- based	Buffered version is user-program. for data storage, recall, editing, & format- ting; trans. speeds are 110 or 300 for KSR, 110 to 4800 for buffered version	Available with pedestal; prints 9 copies; 200 cps catch-up speed

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Sanyo STT 401KC	Siemens Corporation PT80	Siemens Corporation PT80 INKJET	Siemens Corporation T-1000	Sperry-Univac DCT 475, 500, & 524
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	No No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes No Optional Yes	Yes Yes RAM, punched tape, mini-diskette Yes No	Yes Yes RAM, punched tape; mini-diskette Yes No	Yes Yes Punched tape, RAM, mini-disk. Yes No	DCT 500 only DCT 475/500 DCT 500 only; 8- level punched tape No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	— — — — —	None Optional Both standard Optional Standard	None Optional Both standard Optional Standard	None Optional None Optional Standard	— No Both Optional Optional
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Non-impact (therm.) 5 x 7 dot matrix 80 40 96 ASCII No — — Friction — — —	Impact 12 x 9 dot matrix 80; 132 opt. 10/15/30/60 96 ASCII/CCITT #5 Standard 10 3/4/5/6 Friction/pin Standard No Last char. visi- bility; single feed opt., low paper ind.	Non-impact 12 x 9 dot matrix 80; 132 opt. 10/15/30/60 96 ASCII/CCITT #5 Standard 10 3/4/5/6 Friction/pin Standard No Last char. visi- bility; single feed opt., low paper ind.	Impact Full char. printing via daisy wheel 60-72 6/10/13.3 CCITT #2 Standard 10 3/4/5/6 Friction/pin No No Last char. visi- bility; single feed opt., low paper ind.	Impact Full character print- ing via rotating helical typewheel 132 10/15/30 (DCT 500) 63 ASCII No 10 6 Pin No No —
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter 96 ASCII —	77-key typewriter 128 ASCII Char. repeat std.; numeric pad opt.	77-key typewriter 128 ASCII Char. repeat std.; numeric pad opt.	60-key typewriter Baudot Char. repeat std.	Typewriter 128 ASCII Three keyboards available for ASCII, EBCDIC, or A/H
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full-duplex Asynchronous 110/150/200/300 7-bit & parity bit ASCII — Standard — RS-232-C No Standard	Half/full duplex Asynchronous 110/150/300/600 8-level ASCII or CCITT #5 10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/150/300/600 8-level ASCII or CCITT #5 10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop Optional Optional	Half/full duplex Asynchronous 60/75/100 5-level Baudot 7.5 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Std. (DTC 500) Char. by char. RS-232-C Optional No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	Contact vendor — Contact vendor — — — Sanyo	— — 3,900-6,100 — 10/77 — Siemens or RCA	— — 4,195-4,795 — 1/78 — Siemens or RCA	— — 3,200-5,800 — 1/77 — Siemens or RCA	85-253 — 2,592-7,720 — 7/70 — Sperry Univac
COMMENTS		Add-ons available: mini disk, micro expander, CRT	Add-ons available: mini disk, micro expander, CRT	Add-ons available: mini disk, micro expander, CRT	DCT 475 speed is fixed at 10 cps (110 bps)

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	Teletype Model 42 BSR	Teletype Model 43	Teletype AP200	Telex Terminal Communications TC241B	Telex Terminal Communications TC 767
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	No Yes No No	Yes (Aux. port only) Yes No Yes
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes Yes Yes No	Basic 43 only Yes Punched tape opt., solid-state buffer opt. Yes No	Yes No No Standard No	No Yes No No No	No Yes Up to 8K RAM Optional No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	16K Standard Both standard No Yes	16K edit/send & rec. Opt. (character) Both standard Optional Yes	256 (SSI), 1000 (EIA) No Checking only No No	Up to 2047 No Standard Standard No	Up to 8192 Both standard Checking only Standard No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 7 x 9 dot matrix 80 at 10 cpi 30 CCITT # 2 No 10/13 6 Friction Standard — Last char. visib., low paper alarm	Impact 7 x 9 dot matrix 80/100/132 10/30 94 ASCII Standard 10/13 6 Fric./pin/trac. (var.) Buffer version only Buffer version only Last character visibility, diagnostics	Impact 7 x 7 dot matrix 132 340 96 ASCII/EBCDIC Standard 5/10/16.7 6/8 Tractor No No Bidirectional printing, status indicator	Impact Full char. printing via type wheel 132/158 40 40 ASCII Standard 10/12 6/8 Friction; pin opt. Standard Optional Auto blank suppress, tractor feed, extra 2K buffer, diagnostics	Impact Daisy wheel 132/158 40/50 96 EBCDIC Standard 10/12 6/8 Friction/pin/trac. Standard Standard Bidirectional print, paper out sensor
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	Typewriter Baudot Numeric keypad, edit control cluster	Typewriter 128 ASCII Character repeat	None — —	77-key typewriter Several Numeric insert, auto repeat std.	80-key typewriter 96 EBCDIC Numeric pad std.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 45/50/75/100/200 5-level Baudot 7.5 bits/char. Standard Char. by char. RS-232-C No No	Half/full duplex Asynchronous 110/1800 (Buffer) 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop Optional No	— Asynchronous 56K (CCI), 110-9600 8-level 10/11 bit No Char. by char. SSI or simplified RS-232-C. No No	Half duplex Asynchronous 75/1800 6-level BCD 9 bits/char. No Variable RS-232-C Optional No	Half/full-duplex Asynchronous Up to 4800 7-bit EBC., 7-bit ASCII, 8-bit (SDLC) — Standard Variable RS-232-C std. Optional Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 2,720-3,238 — — — Teletype	Purchase only — 1,388-3,027 — — — Teletype	— — 3,868-4,038 — 7/81 — Teletype	— 166 4,800 43 12/73 7,100 Telex	— 170-195 5,700-6,050 39 5/81 — Telex
COMMENTS	Microprocessor- based; optional 5-level paper tape punch/reader module; built-in diagnostics; com- pact tabletop design; autodial	Available from Bell System operating companies	8080A for printer logic; 8085 for interface logic	Microprogrammed; three switch- selectable program- mable formats—2 fixed, 1 variable	Microprogrammed; three switch- selectable formats— 2 fixed, 1 vari- able; top or bottom feed table-top printer; operator configurable, set- tings stored in non-volatile memory

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Telpar PS-48C	Telpar PPS-80E	Texas Instruments Models 743/745	Texas Instruments Models 763/765	Texas Instruments Model 781
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes Yes No	Yes Yes Optional 16K-byte page buffer (RAM)	Yes (743 only) Yes No	No No Yes—bubble memory	Yes No No
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	743 std., 745 opt. Yes (745 only)	Yes Yes (765 only)	Standard No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	132 No	Up to 16K Yes, via keyboard	None No	80 Yes, via keyboard	1K std., 2K opt. No
Parity checking/generation	Both standard	Both standard	Generate only	Generation only	Generation
Polling/Addressing capability Automatic answer	No No	Optional No	No No	No Standard	No No
PRINTER CHARACTERISTICS Type Technique	Non-impact (thermal) 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact Thermal; 5 x 7 dot matrix	Non-impact (thermal) 5 x 7 dot matrix	Non-impact 5 x 7 dot matrix
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	48 24 96 ASCII; foreign Standard 10 6 Friction No No Line feed, paper- out, parity error framing	80 30 96 ASCII; program. Standard 10 6 Friction/tractor Yes Yes Line feed, half step, last character visibility	80 10/30 64 ASCII; 95ASCII opt Optional 10 6 Friction No No —	1-80 (user-progr.) 10/30 95 ASCII Standard 10 6 Friction From playback No Add'l. 33 ASCII control chars. in Edit mode	80 120 ASCII Standard 10 6 No No No Bidirect. printing, last char. visibility, paper-out indicator
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key Teletype/ typewriter (switch.) 128 ASCII	58-key Teletype/ typewriter (switch.) 28 ASCII + user-def. Optional numeric pad	Typewriter	Typewriter	None
Character set Features	—	—	96ASCII;128ASC. opt. Character repeat, numeric pad, APL char. set opt.	128 ASCII Embedded numeric pad standard	—
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110/300 8-level ASCII	Half/full duplex Asynchronous 110 to 9600 8-level ASCII	Half/full duplex Asynchronous 110/300 8-level ASCII	Half/full duplex Asynchronous 110-9600 8-level ASCII	Half/full duplex Asynchronous 110/9600 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. std. RS-232-C, 20-mA, TTL serial or parallel	10/11 bits/char. Standard Char. by char. std. RS-232-C, 20-mA, TTL serial or parallel	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA dc current loop opt. Optional (743 only) Yes (745 only)	10/11 bits/char. Standard Char. by char. RS-232-C std., 20/ 60-mA dc curr. loop opt. Optional (763 only) Yes (765 only)	10/11 bits/char. Standard Char. by char. RS-232-C, 20/60- mA current loop
Integral modem Telephone coupler	No No	Optional Optional	Optional (743 only) Yes (745 only)	Optional (763 only) Yes (765 only)	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 768 — 3/79 — Telpar	— — 895 — 6/79 — Telpar	85-93/100-113 75-83/95-108 995-1,695 — 1/76 — Texas Instruments	125-170/140-200 120-165/130-180 2,695-2,995 — 12/77 — Texas Instruments	— — 1,595 — 3rd quarter 1980 — Texas Instruments
COMMENTS	Microprocessor- based 3870	Microprocessor- based 3870	Microprocessor- based (TMS 8080) unit; can print continuously at 30 cps	Microprocessor- based (TMS 9980 & TMS 8080); non- volatile magnetic bubble memory storage; extensive editing features	Microprocessor- based

Teleprinter Terminals—Management Perspective and Equipment Specifications

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Teleprinters

MANUFACTURER AND MODEL	Texas Instruments Model 783	Texas Instruments Model 785	Texas Instruments Model 787	Texas Instruments Model 810	Texas Instruments Model 820
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	No Yes No	No Yes No	No Yes No	Yes No No	Yes Yes No
RS-232 auxiliary (second) I/O interface Portable case	Standard No	Standard Yes	Optional Yes	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete	1K std. No	256 No	256 No	256 No	1280; opt. 3328 No
Parity checking/generation	Generation	Generation	Generation	Standard	Both standard
Polling/Addressing capability Automatic answer	No No	No No	No Yes	No No	No Yes
PRINTER CHARACTERISTICS Type Technique	Non-impact 5 x 7 dot matrix	Non-impact 5 x 7 dot matrix	Non-impact 5 x 7 dot matrix	Impact 9 x 7 dot matrix	Impact 9 x 7 dot matrix
Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	80 120 ASCII Standard 10 6 No No No Bidirect. printing, last char. visibility, paper-out indicator	80 120 ASCII Standard 10 6 No No No Bidirect. printing, last char. visibility	80 120 ASCII Standard 10 6 No No No Bidirect. printing, last char. visibility, paper-out indicator	132 150 64 ASCII; 95 opt. Optional 10/16.5 6/8 Tractor Standard Standard Bidirect., paper out, busy status	132 (10 cpi); 218 (16.5 cpi) 150 95 ASCII Standard 5/8.3/10/16.5 3/4/6/8 Tractor Optional Optional Bidirect. printing; last char. visib., paper-out ind., busy status incl. 58-key typewriter
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key typewriter	58-key typewriter	58-key typewriter	None	58-key typewriter
Character set Features	128 ASCII Repeat key, APL char. set opt.	128 ASCII Repeat key, APL char. set opt.	128 ASCII Repeat key std., APL char. set opt.	— —	128 ASCII Numeric pad opt.; alter. APL, foreign character sets opt., repeat
TRANSMISSION Mode Technique Speed, bits/second Code	Half/full duplex Asynchronous 110-9600 8-level ASCII	Full duplex Asynchronous 110-1200 8-level ASCII	Full duplex Asynchronous 110-1200 8-level ASCII	Half/full-duplex Asynchronous 110-9600 8-level ASCII	Half/full duplex Asynchronous 110-9600 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60- mA current loop	10/11 bits/char. Standard Char. by char. RS-232-C	10/11 bits/char. Standard Char. by char. RS-232-C; 20/60- mA current loop	10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop; parallel	10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA current loop
Integral modem Telephone coupler	No No	Standard Standard	Standard No	No No	No No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	95 90 1,795 — 2nd quarter 1980 — Texas Instruments	125 120 2,445 — 2nd quarter 1980 — Texas Instruments	150 145 2,895 — 3rd quarter 1980 — Texas Instruments	128 123 1,895-2,180 28.50 6/77 — Texas Instruments	100-110 95-105 1,995-2,665 26.00-29.50 10/78 — Texas Instruments
COMMENTS	Microprocessor- based	Microprocessor- based	Microprocessor- based	Microprocessor- based; self-test capability; opt. printhead capable of printing 9-part forms; designed for computer printer market	Microprocessor- based; self-test capability; KSR & RC versions; Kata- kana opt.; X-on/ X-off for ready/ busy; designed for telecom. market

Teleprinter Terminals—Management Perspective and Equipment Specifications

MANUFACTURER AND MODEL	Texas Instruments Model 825	Texas Instruments Model 840	Tracor Model 8000	Trans-Lux Teleprinter 72-30	Trans-Lux Teleprinter 300
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	— — — —	No No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage	Yes Yes No	Yes Yes No	Yes Yes Yes; RAM opt., tape cart. unit; VDU opt.	No No Yes, 2K or 4K RAM (send only)	No No Yes, 16K RAM
RS-232 auxiliary (second) I/O interface Portable case	No No	No No	No No	No No	No No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete	256 No	256; 2K, 4K opt. No	2048 Both standard	2048/4096 Char. only	8K send/8K receive Yes, via keyboard
Parity checking/generation	Both standard	Both standard	Both standard	No	Generation only
Polling/Addressing capability Automatic answer	No Yes	No No	Standard Optional	No Standard	No Standard
PRINTER CHARACTERISTICS Type Technique	Impact 9 x 7 dot matrix	Impact 9 x 7 dot matrix, 9 x 9, 15 x 9 opt.	Impact 7 x 7 dot matrix	Impact 5 x 7 dot matrix	Impact 5 x 7 (receive) or 4 x 5 (send) dot matrix
Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	132 (10 cpi); 218 (16.5 cpi) 75 95 ASCII Standard 5/8.3/10/16.5 3/4/6/8 Tractor Optional Optional Bidirect. printing; last char. visib., paper-out ind., busy status	132; 218 opt. 75 95 ASCII Standard 10; 5/8.3/16.7 opt. 6; 3/4/8 opt. Friction; trac. opt. Optional Standard Bidir. print, paper out, last char. visibility	69-132 selectable 240 128 ASCII Standard 10 3 or 6 Tractor Yes Yes Bidirect. print., last char. visib., paper out indicator	69 6.6/13.3 57 Baudot No 10 4.25 No — Last character visibility	72 10/30 64 ASCII No 10 4.25 No — Last character visibility
KEYBOARD CHARACTERISTICS Keyboard arrangement	58-key typewriter	58-key typewriter	Typewriter	Typewriter	Typewriter
Character set Features	128 ASCII Numeric pad opt.; alter APL, foreign char. sets opt.	128 ASCII Numeric pad, foreign & APL opt.	128 ASCII Char. repeat, programmable keyboard	57 Baudot Char. repeat std.	64 ASCII Char. repeat std.
TRANSMISSION Mode Technique Speed, bits/second Code	Half-/full duplex Asynchronous 110-600 8-level ASCII	Full-duplex Asynchronous 110-600 std., 9600 8-level ASCII	Full duplex Async., sync., isync. 74.45-9,600 8-level ASCII 5-level Baudot 7 to 11 bits/char. Yes Char. by char. RS-449, Mil-std. 188-114, Autodin I	Half duplex Asynchronous 66 wpm 5-level Baudot	Half duplex Asynchronous 110/300 8-level ASCII
Unit code structure Operator selectable speeds Block size Communications interface	10/11 bits/char. Standard Char. by char. RS-232-C, 20-mA current loop	10/11 bits/char. Standard Char. by char. RS-232-C, 20-mA current loop	Yes Char. by char. RS-449, Mil-std. 188-114, Autodin I	7 bits/char. Automatic Char. by char. RS-232-C; 20/60-mA dc current loop	10/11 bits/char. Yes Char. by char. Frequency Shift Keying (FSK)
Integral modem Telephone coupler	No No	No No	No No	No No	Yes No
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	— — 1,565-1,945 22-26 10/79 — Texas Instruments	— — 1,195-1,590 20 5/81 — Texas Instruments	— — Contact vendor 1980 — Customer/Tracor	78.50-83.00 76.50-81.00 2,395-2,645 — 12/74 — Trans-Lux	87-94 85-92 2,865 — — — Trans-Lux
COMMENTS	Microprocessor-based; self-test capability; field-upgradable to 820; KSR & RO versions available; X-on or X-off for ready/busy	Microprocessor-based; self-test capability; cartridge ribbon; 15 x 9 dot matrix enhanced print optional; X-on/X-off for Ready/Busy	TEMPEST design; modular construction (7 configurations); microprocessor-based, self-test capability	Designed for use on WU Telex network; can be used on leased facilities; quantity discounts provided	Designed for use on WU TWX network; can be adapted to dial and private line networks; quantity discounts provided

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MANUFACTURER AND MODEL	Trans-Lux RO Printer	Trendata 300/350/360 Trendwriter	Trendata 4000 A/B	Trendcom 400/600
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No Yes No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes No No No No	No Yes Punched tape, cas- sette tape, diskette No No	No Yes Punched tape, cas- sette tape, diskette No No	Yes (see Comments) Yes (see Comments) 4K RAM (600 only) Optional Optional
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	No No No Optional Optional	1024 No Both No Optional	1024 No Both No Optional	400 Function keys Generation only No Standard, w/ answerback
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char/second Character set Lower case alphabetic Horizontal pitch, char/inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact 5 x 7 dot matrix 80 10/15/30 96 ASCII/64 Baudot Optional 10 4.4 Friction/sprocket No No Last char. visibility, low- paper alarm	Impact 7 x 7 dot matrix 132 Up to 165 96 ASCII, APL Standard 12 6 Tractor Optional No 350 only—bidirec- tional forms option, paper-out indicator	Impact Daisy wheel, HyType I or II 132/158 30-45 ASCII/APL/others Standard 10/12 6/8 Frict./pin/tractor Standard Standard Plotting, forms option, paper-out indicator	Non-impact (therm.) 5 x 7 dot matrix 40 40 96 ASCII Standard 11 6 Friction No No Bidir. print, last char. visibility, graphics printing
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	— — —	Typewriter 128 ASCII Char. repeat std., alternate APL char. set	Typewriter 128 ASCII Char. repeat std., alternate APL; alternate 2741	59-key typewriter 96 ASCII Auto repeat std., single stroke function keys for edit/control
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Simplex Asynchronous 110/150/300 8-level ASCII, 5-level Baudot (switch-select.) — Standard Char. by char. RS-232-C/CCITT; 20/ 60-mA dc curr. loop Optional No	Half/full duplex Asynchronous 75-4800 8-level ASCII 10 bits/char. Standard Char. by char. RS-232-C, parallel, 20-mA current No Optional	Half/full duplex Asynchronous Up to 300 8-level ASCII, EBCD 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA current Optional Optional	Half/full-duplex Asynchronous 110/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C opt. Standard Standard
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	Contact vendor Contact vendor Contact vendor — — — Trans-Lux	Contact vendor Contact vendor Contact vendor — 1/76 — Trendata	Contact vendor Contact vendor Contact vendor — 1/75 — Trendata	50-65 (approx.) — 600-900 (approx.) — 1/81 — Trendcom & distributors
COMMENTS	Ribbon unit available	8080A micro- processor	Microprocessor-based	Model 600 Intelli- gent Keyboard converts unit from RO to KSR; Acces- sory Model 810 allows auto- switching between TWX & DDD; ter- minal logic uses 2 microproc- essors

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MANUFACTURER AND MODEL	Trendcom 800/600	Western Union Data Services EDT 33	Western Union Data Services EDT 35	Western Union Data Services EDT 300
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No No No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	Yes (see Comments) Yes (see Comments) 4K RAM (600 only) Optional Optional	No Yes Punched tape, cassette tape Optional No	No Yes Punched tape, cassette tape Optional No	No Yes Punched tape, cassette tape Optional No
TERMINAL FEATURES Line buffer capacity, characters Editing: line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	400 Function keys Generation only No Standard w/answerback Non-impact (thermal) 5 x 7 dot matrix	No Char. only Generation std. No Optional	No Char. only Generation std. No Optional	No Char. only Gen. std.; chk. opt. Yes Optional
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	 80 40 96 ASCII Standard 11 6 Friction No No Bidir. print, last char. visibility, graphics printing	Impact Full character printing via rotating type cylinder 72 10 64 ASCII No 10; 12 opt. 6/3 Friction; pin No —	Impact Full character printing via moving type box 72 10 64 ASCII No 10 6/3 Friction; pin Optional Standard -	Impact Full character printing via actuator per char. position 75/118 10/15/30 95 ASCII Standard 10 6/3 Friction; pin; tractor Optional Standard
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	59-key typewriter 96 ASCII Auto repeat std.; single stroke func. keys for edit/control	53-key teleprinter 128 ASCII Char. repeat std.; numeric pad opt.	55-key teleprinter 128 ASCII Char. repeat std.; numeric pad opt.	62-key teleprinter 128 ASCII Char. repeat std.; numeric pad opt.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full-duplex Asynchronous 110/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C opt.	Half/full duplex Asynchronous 110 8-level ASCII 11 bits/char. No Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110 8-level ASCII 11 bits/char. No Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/150/300 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop — —
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Served by	60-75 (approx.) — 700-1,000 (approx.) — 1/81 — Trendcom & distributors Model 600 Intelligent Keyboard converts unit from RO to KSR; Accessory Model 810 allows auto-switching between TWX & DDP; terminal logic uses 2 microprocessors	54 (KSR); 60 (ASR); 133 (MSR) 40; 54; 83 (3-yr.) 395 31.50 10/70 Over 9000 Western Union	84 (KSR); 118 (ASR); 168 (MSR) 65; 85; 118 (3-yr.) 500 43 10/70 Over 1000 Western Union	115 (KSR); 215 (ASR); 199 (MSR) 86; 123; 121 (3-yr.) 975 44 5/72 Over 5000 Western Union
COMMENTS				

Teleprinter Terminals—Management Perspective and Equipment Specifications

C27-010-141
Teleprinters

MANUFACTURER AND MODEL	Western Union Data Services EDT 1200	Western Union Data Services EDT 1232	Xerox 1730	Xerox 1740/1750
COMPATIBILITY Teletype 33/35 IBM 2740-1/2740-2 IBM 2741 IBM 3767	Yes No No No	Yes No No No	Yes No No No	Yes No Yes No
MODEL CONFIGURATIONS Printer only Printer and keyboard Printer, keyboard, and storage RS-232 auxiliary (second) I/O interface Portable case	No Yes (KSR) Punched tape (ASR), cassette tape (MSR) Optional No	Yes Yes Cassette tape Optional No	Yes No No RS-232-C; 20mA opt. Yes	Yes Yes No RS-232-C; 20-mA opt. No
TERMINAL FEATURES Line buffer capacity, characters Editing; line/character insert/delete Parity checking/generation Polling/Addressing capability Automatic answer	None Char. only Gen. std.; chk. opt. Yes Optional	1024 Char. only Gen. std.; chk. opt. No Standard	768; 2688 opt. No Both standard No No	256 std., 2304 opt. Word processing option Both standard No No
PRINTER CHARACTERISTICS Type Technique Character positions per line Print rate, char./second Character set Lower case alphabetic Horizontal pitch, char./inch Vertical spacing, lines/inch Forms feed Horizontal tabulation Vertical formatting Other features	Impact Full character print- ing via actuator per char. position 80/120 10/30/120 95 ASCII Standard 10 6/3 Tractor Optional Standard Tractor feed	Impact Full character print- ing via actuator per char. position 132 10/20/30/120 95 ASCII Standard 10 6; 8 opt. Tractor Standard Standard Front & rear paper feed	Impact Plastic/metal daisy wheel 132/158/198 40 94 ASCII Standard 10/12/15 variable 6/variable Frict./pin/trac. opt. Standard Standard Bidirectional printing	Impact Plastic daisy wheel (1740); metal daisy wheel (1750) 132/158/variable 45 (1740); 40 (1750) 94 ASCII; 2741 set Standard 10/12/variable 6/variable Frict./pin/tractor Standard Standard —
KEYBOARD CHARACTERISTICS Keyboard arrangement Character set Features	62-key teleprinter 128 ASCII Char. repeat std.; numeric pad opt.	73-key typewriter 128 ASCII Char. repeat & numeric pad std.	None — —	Typewriter 128 ASCII/full 2741 Char. repeat std.; 32-char. buffer; numeric pad std.
TRANSMISSION Mode Technique Speed, bits/second Code Unit code structure Operator selectable speeds Block size Communications interface Integral modem Telephone coupler	Half/full duplex Asynchronous 100/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full duplex Asynchronous 110/200/300/1200 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20-mA dc current loop Optional Optional	Half/full-duplex Asynchronous 110-9600 8-level ASCII 10/11 bits/char. Standard Char. by char. RS-232-C; 20mA No Optional	Half/full duplex Asynchronous 110 to 1200 8-level ASCII, PTTC/ EBCD, Corresp. 9/10/11 bits/char. Standard Char. by char. RS-232-C; 20/60-mA current loop opt. No Optional
PRICING AND AVAILABILITY One year lease, \$/mo. Two year lease, \$/mo. Purchase price, \$ Monthly prime shift maintenance, \$ Date of first production delivery Number of terminals installed to date Serviced by	165 (KSR); 249 (MSR) 112; 152 (3-yr.) 1,100 55 5/73 Over 2000 Western Union Data Services Prices are for KSR, MSR, respectively	155 (RO); 175 (KSR); 259 (MSR) 112; 128; 185 (3-yr.) 2,500 (KSR) 58 8/77 Over 2,500 Western Union	130 — 2,710 40 1980 — Xerox Microprocessor- based unit; inter- changeable metal/ plastic printwheel	130-165 (incl. maint.) — 2,930-3,095 40-45 1979 — Xerox Microprocessor-based unit; Diablo HyType II printer
COMMENTS				

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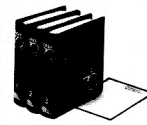
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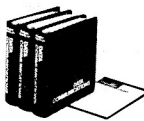
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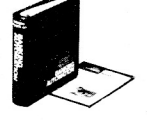
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